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Infrastructure, environment, buildings

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Site Investigation Report
Former BP Service Station #4931
731 West MacArthur Boulevard
Oakland, California 94609
ACEH Case #RO0000076

ENVIRONMENT

"I declare that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct."

Date:
November 11, 2010

Submitted by:

ARCADIS U.S., Inc

Hollis E. Phillips, PG
Project Manager

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ENVIRONMENT

Mr. Paresh Khatri
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1131 Harbor Bay Parkway, Suite 250
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Subject:
Site Investigation Report
Former Atlantic Richfield Company Station No. 4931
731 West MacArthur Boulevard
Oakland, California 94609
ACEH Case # RO0000076

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November 11, 2010

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Dear Mr. Khatri:

ARCADIS U.S. (ARCADIS) has prepared this *Soil and Groundwater Investigation Report* (Report) for the Former ARCO Service Station No. 4931 (Site) located at 731 West MacArthur Blvd in Oakland California (**Figure 1**). This Report has been prepared to document site assessment activities conducted as proposed originally in Broadbent & Associates, Inc. (BAIs) *Soil and Groundwater Investigation Work Plan* dated July 14, 2009 and in ARCADIS' *Revised Work Plan Addendum for Additional Soil Characterization* dated September 2, 2010. This work was conducted as requested in the Alameda County Environmental Health (ACEH) letter dated May 15, 2009.

Site Background

The Site is located at 731 West MacArthur Boulevard in Oakland, California. It is an active Beacon-branded gasoline station. Improvements to the Site include four 10,000 gallon double-wall fiberglass gasoline underground storage tanks (USTs) installed on April 8, 1992. Product lines were excavated, removed, inspected, and replaced October 2, 2002. The majority of the Site surface is paved with concrete and asphalt. A Site Location Map is provided as **Figure 1**. A Site Map showing historical sampling locations is provided as **Figure 2**.

The Site is bound by West MacArthur Boulevard to the north-northeast, West Street to the west-northwest and single-family residential dwellings to the south-southwest and east-southeast. Interstate 580 is located approximately 620 feet south-southwest of the Site.

Previous Site Investigations

A super unleaded product leak was reported to have occurred in November 1982 at the Site, however the quantity of product released is unknown (Gettler-Ryan, 4/3/1989). Wells A-1 through A-4 are known to have been installed prior to December 1982; however exact dates and consultants responsible are unknown. Wells A-5 through A-8 were installed by Groundwater Technology, Inc. (GTI) in March 1983. Wells A-9 through A-12 were installed by Pacific Environmental Group, Inc. (PEG) in December 1987. Soil samples were reportedly collected from borings A-9 through A-12 at five-foot intervals for logging purposes, but were not analyzed. Well A-9 was advanced to 45 ft below ground surface (bgs) and constructed with six-inch diameter PVC casing. Wells A-10 through A-12 were advanced to 30.5 ft bgs and constructed with three-inch diameter PVC casing and 0.020 inch slotted screen (PEG, 1/20/1988). GeoStrategies, Inc. (GSI) reported in their 15 May 1991 *Remedial Action Plan* that well A-1 was destroyed during underground storage tank (UST) replacement activities in August 1983. Additional information pertaining to the 1983 UST replacement activities was not available. Historic boring locations are depicted in **Figure 2**.

In late 1987, PEG conducted a water-supply well search within a 0.5 mile radius of the Site, as reported in their 20 January 1988 *Soil and Groundwater Investigation Report*. The Department of Water Resources (DWR) reported three historical wells within 0.5 miles of the Site. Two wells were identified approximately 1,300 feet northwest of the site. One was of an unknown depth and use, drilled in 1928. The second was drilled in 1926 to a depth of either 575 of 420 feet. The well was abandoned in 1956. The third well was identified approximately 2,400 feet west (downgradient) of the Site. It was drilled in 1927 to 97 ft bgs for industrial use.

In April 1991, GSI performed a hybrid step-drawdown/constant-rate aquifer test utilizing well A-9. The test consisted of four pumping steps followed by a recovery step. Transmissivity was calculated as 1,092 to 2,668 gallons per day per foot (gpd/ft) using Jacob's method, and 996 to 2,502 gpd/ft using the Neuman method. Storativity was calculated to be 1.18 · 10-2 to 4.24 · 10-3, which was reportedly indicative of a heterogeneous environment. According to GSI, "Specific yield [sic – capacity?] values ranged from 1.74 · 10-2 to 9.65 · 10-3," suggesting unconfined to semi-confined subsurface conditions (GSI, 7/10/1991). In GSI's *Remedial Action Plan*, dated 15 May 1991, approximately 30 years of pumping on well A-9 was modeled, which suggested that hydrodynamic control of the hydrocarbon plume within the groundwater was achievable at the Site. A groundwater extraction

treatment system was proposed within the same report, designed to pump from well A-9 and treat groundwater onsite using carbon vessels.

In January 1992, GSI observed the advancement of one vapor extraction well (AV-1). AV-1 was installed to a depth of 15 ft bgs and screened from 5 ft bgs to total depth. Three Vapor Extraction Monitoring Points (VEMPs) were also installed at this time. The VEMPs were 0.75- inch diameter metal pipe driven to a depth of eight ft bgs, then withdrawn six to eight inches. The VEMPs were located at approximately four-foot intervals linearly east of well AV-1. GSI conducted a four-hour vapor extraction test on 20 January 1992 on well AV-1, utilizing an internal combustion engine to create vacuum and combust vapors. Vacuum pressure in well AV-1 was sustained between 158.0 to 169.3 inches of water, while manometers were used to measure pressure changes at the VEMPs. No measurable influence was recorded at the three VEMPs, indicating less than a four-foot radius of influence for well AV-1. GSI subsequently concluded that vapor extraction was not likely to be a feasible remedial option at the Site (GSI, 5/21/1992).

Between 18 November 1991 and 8 April 1992, Roux Associates (RA) observed the UST removal and replacement installation activities. Paradiso Construction Company (Paradiso) removed one 12,000 gallon single-walled fiberglass tank, two 8,000 gallon single-walled steel tanks, and one 6,000 single-walled steel tank on 19 November 1991. It was reported that according to the ACEH and RA personnel, the former tanks appeared to be in good condition, with no holes or obvious leaks. Two pre-existing four-inch tank observation wells near tank T1 were also removed at this time. Black oil staining was observed on the inside of the tank observation well casing, as well as on the surface of the exposed groundwater near where the wells were located. A vacuum truck was utilized on 21 November 1991 to remove approximately 2,800 gallons of oil/groundwater mixture from the tank cavity. Due to reported soil staining and hydrocarbon odors, the tank cavity was over-excavated on 21 November 1991. The south end of the tank cavity (former tanks T2, T3, and T4) was excavated to approximately 14 ft bgs, while the north end (former tank T1) was excavated to approximately 12 ft bgs. Further over-excavation along the north and west side-walls of the tank cavity occurred between 20 December 1991 and 13 February 1992. The former tank cavity was backfilled on 27 February 1992 with two to four feet of pea gravel and road base aggregate to near the surface. Product lines associated with the former UST complex were excavated and removed on 1 and 2 December 1991. Select locations along the former product line trenches were over-excavated on 20 December 1991. The current UST pit excavation was initiated on 9 March 1992. Four double-walled 10,000 gallon fiberglass tanks were installed at 14 ft

bgs on 8 April 1992. One 12-inch diameter slotted PVC conductor casing was installed to 13 ft bgs in the new UST cavity (RA, 7/20/1992).

On 15 and 16 June 1992 GSI observed the advancement of one soil boring offsite (A-13) and three soil borings onsite (AR-1, AR-2, and AR-3). Monitoring well A-13 was installed to a depth of 30 ft bgs and constructed with three-inch diameter Schedule 40 PVC casing and screened from 10 to 30 ft bgs with 0.020-inch machine-slotted casing. Recovery wells AR-1 and AR-3 were installed to a depth of 30 ft bgs and constructed with six-inch diameter Schedule 40 PVC casing and screened from 10 to 30 ft bgs with 0.020-inch slotted carbon steel casing. Recovery well AR-2 was installed to a depth of 28 ft bgs and constructed with six-inch diameter Schedule 40 PVC casing and screened from 8 to 28 ft bgs with 0.020-inch slotted carbon steel casing. Also during second quarter 1992, a passive product skimmer was installed in well A-8 (GSI, 11/13/1992).

In late 1992, GSI oversaw the installation of an interim groundwater extraction remediation system (GWETS). The system began operation on 10 November 1992, utilizing two pumps in each of wells A-9, AR-1, AR-2, and AR-3, removing hydrocarbon impacted groundwater and free product (FP) from the subsurface. Collected FP was contained in 55-gallon drums. Groundwater was passed through a centrifugal separator, particulate filter, three in-series 1,500 pound activated carbon vessels, and ultimately discharged into the sanitary sewer system (GSI, 2/22/1994). In their *Recovery System Evaluation Report, First Quarter 1994*, dated 27 June 1994, GSI reports that the GWETS wells A-9, AR-1, AR-2, and AR-3 contain only one pump each for groundwater, and a product pump has been installed in well A-8. The GWETS was shutdown on 5 July 1995 for the following reasons cited by Pacific Environment Group, Inc. (PEG) in their *Quarterly Report – Second Quarter 1995, Remedial System Performance Evaluation*, dated 29 September 1995: 1). Since system startup only 2.74 pounds (0.45 gallons) total petroleum hydrocarbons in the gasoline range (TPHg) and 0.46 pounds (0.06 gallons) of benzene had been removed; and 2). Downgradient wells A-11 and A-12 had remained non-detect for TPHg and benzene since groundwater monitoring began in 1988, indicating that the plume had stabilized and downgradient migration was minimal. At shutdown, the system had removed and treated approximately 4,643,696 gallons of groundwater. As of 31 December 1995, 23 pounds (3.75 gallons) of FP have been removed from the Site (PEG, 3/15/1996).

After the GWETS had been shutdown and pumps removed from the remediation wells, PEG initiated an in-situ bioremediation enhancement program. On 17

November 1995, eight oxygen releasing compound (ORC) socks were installed in well A-9. ORC is a magnesium peroxide powder, which slowly releases oxygen when hydrated (PEG, 3/15/1996).

On 2 October 2002, URS Corporation (URS) observed product line upgrade activities at the Site. The product lines were excavated, removed, inspected, and replaced. URS reported no observable cracks or deterioration of the former product lines. Soil samples were collected and analyzed from the product line trenches as well as from beneath the former dispenser islands. Two locations required minor over-excavation due to observed soil staining and hydrocarbon odors. The new product lines were replaced within the same trenches (URS, 1/21/2003).

Quarterly groundwater monitoring at the Site was initiated in the First Quarter 1989 by Gettler- Ryan, Inc. The site is currently monitored on a semiannual basis by Broadbent & Associates, Inc. (BAI).

Regional Geology and Hydrogeology

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report* (California Regional Water Quality Control Board – San Francisco Bay Region/SFRWQCB, June 1999), the Site is located within the Oakland Sub-Area of the East Bay Plain of the San Francisco Basin. The Oakland Sub-Area contains a sequence of alluvial fans. The alluvial fill thickness ranges from 300 to 700 feet deep. There are no well-defined aquitards such as estuarine muds. The largest and deepest wells in this sub-area historically pumped one to two million gallons per day at depths greater than 200 feet. Overall, sustainable yields are low due in part to low recharge potential. The Merrit sand in West Oakland was an important part of the early water supply for the City of Oakland. It is shallow (up to 60 feet), but before the turn of the last century, septic systems contaminated the water supply wells.

Throughout most of the Alameda County portion of the East Bay Plain, from Hayward north to Albany, water level contours show that the general direction of groundwater flow is from east to west or from the Hayward Fault to the San Francisco Bay. Groundwater flow direction generally correlates to topography. Flow direction and velocity are also influenced by buried stream channels that typically are oriented in an east to west direction. Historic groundwater flow direction at the Site has been predominantly towards the west or west-southwest. The nearest natural drainage is Glen Echo Creek, located approximately 4,600 feet southeast of the Site. Glen Echo Creek flows generally northeast to southwest into Lake Merritt (BAI, 2009).

Recent Site Activities

On October 11 and 12, 2010 ARCADIS supervised WDC Exploration & Wells (WDC) in the advancement of five direct-push Geoprobe borings on site. Site assessment activities were conducted to gather additional data to further delineate the nature and extent of impacts in soil on site. The locations of the soil borings are shown in **Figure 3**.

Scope of Work

ARCADIS prepared a site specific Health and Safety Plan (HASP) which was reviewed by the field staff and contractors prior to beginning field operations at the site. Soil Boring Permits were obtained from Alameda County Public Works Department and are included in **Appendix A**.

Underground Service Alert (USA) was notified at least 48 hours before proposed drilling activities to identify public utilities in the vicinity of the proposed borings. In conjunction with USA, a private utility locating company was utilized to further evaluate the potential presence of underground utilities in the vicinity of the proposed boring locations. Prior to installation, the boring locations were hand augered to 5 feet bgs to identify potential underground utility conflicts. Several of the soil boring locations required field modifications due to onsite utility locations and the presence of pea gravel to 5 feet bgs.

Field crews attempted to clear soil borings SB-1 and SB-4 and found continuous pea gravel down to 5' bgs. As a contingency SB-1A was designated as an alternate location to SB-1 and was completed to its target depth. Field Crews attempted to clear SB-4 in four separate locations moving increasingly to the north until the boring coincided with the SB-2 location whereby the boring was abandoned.

Five soil borings were advanced to a maximum depth of 35 feet bgs using direct-push Geoprobe® technology utilizing a small-diameter drive casing and a sample barrel that pushed, pounded or vibrated into the ground. Soil samples for lithologic description were collected continuously to the total depth explored in each borehole. Locations of the soil borings are presented on **Figure 3**. The boring logs of the completed soil borings are presented in **Appendix B**.

Soil samples were examined for odors, visible signs of petroleum hydrocarbons, and screened for organic vapors using a photo-ionization detector (PID). Selected soil samples were submitted for chemical analysis and were sent under chain-of-custody documentation to a California state-certified laboratory. The soil samples were analyzed for the following constituents by a California-certified laboratory:

- TPHg by USEPA Method 8260B

- Benzene, Toluene, Ethylebenzene and total Xylenes (BTEX), Methyl-tert-butyl-ether (MTBE), 1,2-dichloroethane (1,2-DCA), diisopropyl ether (DIPE), ethyl tert-buytl ether (ETBE), tert-amyl methyl ether (TAME), t-buytl alcohol (TBA) and 1,2-dibromoethane (EDB) and Ethanol by USEPA Method 8260B

Upon completion of the sample collection, the equipment was retrieved to the ground surface and decontaminated. The borehole was brought to grade with neat cement grout. Field Documentation is included in **Appendix C**.

Investigation-derived waste was containerized in 55-gallon Department of Transportation (DOT)-approved drums and temporarily stored on the subject property pending transport by Belshire Environmental Services Inc. (BESI) disposal contractor to an appropriate disposal or treatment facility.

Site Investigation Results

Subsurface Conditions:

Generally, the soil profile consisted of alternating layers of clay, clayey sand and gravelly clay, and an approximately 4-foot thick intermittent sand/gravel layer encountered between 18 and 23 feet bgs. Boring Logs from the well installations are included as **Appendix B**.

Soil Analytical Data:

Concentrations of TPHg were detected in four of the five boring locations with a maximum concentration of 1,400,000 micrograms per kilogram (µg/Kg) in SB-1A at 25 feet bgs. Benzene was detected in three of the five boring locations with a maximum concentration of 5,200 µg/Kg (SB-1A-25). Toluene was detected in one location with a maximum concentration of 34,000 µg/Kg (SB-1A-25). Ethylbenzene was detected in three of the five boring locations sampled at a maximum

concentration of 17,000 µg/Kg (SB-1A-25). Total xylenes detected in three of the five boring locations with a maximum concentration of 110,000 µg/Kg (SB-1A-25). MTBE was detected in three of the five borings with a maximum concentration of 140 µg/Kg (SB-5-10 and SB-6-20). TBA was detected in four of the five borings with a maximum concentration of 460 µg/Kg (SB-5-5). TAME was detected in one of the five borings with a maximum concentration of 34 µg/Kg (SB-5-10). 1,2-DCA was detected in one of the five boring locations with a maximum concentration of 4.9 µg/Kg (SB-1A-15). The remaining requested analytes were not reported above laboratory detection limits. Soil analytical results are presented in **Table 1**. A copy of the laboratory analytical report and chain-of-custody documentation is included in **Appendix D**.

Conclusion and Recommendations

As stated by ACEH in their regulatory letter dated August 12, 2010 “the goal of this investigation is not only to delineate the extent of contamination, but to obtain current data in the vicinity of previously detected elevated concentrations of petroleum hydrocarbons (i.e. confirmation sampling).”

Soil boring SB-1A-5 and SB-1A-10 (the number at the end of the sample identification represents the depth at which it was collected) were used to confirm the soil concentrations reported in 1992 for samples L12 and SW18. The current concentrations of TPHg and benzene collected from SB-1A-5 show an order of magnitude drop in concentrations of TPHg and two orders of magnitude in concentrations for benzene. The historical soil sample from L12 reported concentrations of TPHg and benzene at 400 mg/Kg and 2.6 mg/Kg, respectively. The soil sample from SB-1A-5 reported no COCs above the laboratory detection limit. The historical soil sample from SW18 reported concentrations of TPHg and benzene at 250 mg/Kg and 2.7 mg/Kg, respectively. The soil sample from SB-1A-10 reported TPHg at 33 mg/Kg and benzene at 0.035 mg/Kg. None of the reported concentrations exceed the commercial environmental screen levels (ESLs) for shallow soil.

Soil boring SB-2 was used to confirm the soil concentrations reported in 1992 for sample L6. The current concentrations of TPHg and benzene collected from SB-2-5 indicate concentrations of TPHg and benzene have been reduced to below laboratory detection limits.

Soil boring SB-3 did not report any concentrations above the laboratory detection limits and provides lateral delineation to the west (cross-gradient) along with A-5 and A-9.

In effort to delineate potential remaining source areas on site, soil borings SB-5 and SB-6 were advanced in the vicinity of monitoring wells A-4 and A-8 which have reported the highest groundwater concentrations for the past three monitoring events. While soil samples from SB-5 reported concentrations above the laboratory detection limits the concentrations were below the commercial environmental screen levels (ESLs) for shallow soil (Table A-2 for Direct Exposure). Similarly, soil boring SB-6 reported several samples from various depths above the laboratory detection limits however; only one sample exceeded the commercial ESLs for soil (SB-6-10).

Results of the current investigation indicate that low levels of hydrocarbon remain in the soil. Based on the most recent groundwater monitoring data low levels of hydrocarbon contamination remain on the western portion of the site. However based on the isolated areas of both soil and groundwater contamination and the significantly decreased concentrations of soil ARCADIS concludes that this site contains a very low risk and as such should be closed. A Request for Closure will be submitted in the fourth quarter 2010 based upon the following;

- All the wells that contain (or recently contained) concentrations in groundwater indicate a decreasing trends.
- The plume does not appear to be migrating.
- The site has been adequately characterized.
- No sensitive receptors are likely to be impacted, including surface-water bodies, municipal wells and drinking water sources.

If you have any questions or comments, please contact Ben McKenna by telephone at 925.296.7857 or by e-mail at Benino.McKenna@arcadis-us.com or Hollis Phillips by telephone at 415.374.2744 ext. 13 or by e-mail at Hollis.Phillips@arcadis-us.com.

Sincerely,

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Hollis Phillips
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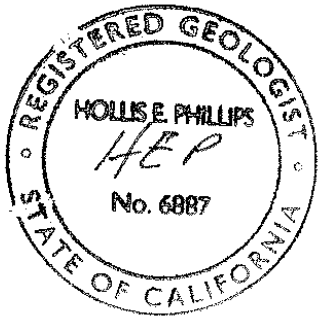

Enclosures:

Table 1	Soil Analytical Data
Figure 1	Site Location Map
Figure 2	Site Map with Historical Sampling Locations
Figure 3	Site Map with Boring Locations and Underground Utilities
Appendix A	Alameda County Soil Boring Permit
Appendix B	Soil Boring Logs
Appendix C	Field Documentation
Appendix D	Laboratory Analytical Report and Chain-of-Custody Documentation

References

California Regional Water Quality Board, San Francisco Bay Region, Groundwater Committee, June 1999. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda and Contra Costa Counties, CA.*

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Tables

Table 1
Soil Analytical Results
Former BP Service Station 4931
731 West MacArthur Blvd, Oakland, CA

Sample Name	Sample Depth (ft bgs)	Sample Date	EPA 8260B												
			TPHg (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)	TBA (mg/Kg)	MTBE (mg/Kg)	DIPE (mg/Kg)	EtBE (mg/Kg)	TAME (mg/Kg)	EDB (mg/Kg)	Ethanol (mg/Kg)	1,2 DCA (mg/Kg)
Comercial ESLs for Soil (mg/Kg)			**450**	**0.27**	**210**	**5**	**100**	**320,000**	**65**	--	--	--	--	--	**0.48**
SB-1A-5	5	10/19/10	<0.24	<0.0049	<0.0049	<0.0049	<0.0097	<0.0097	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.49	<0.0049
SB-1A-10	10	10/19/10	33	0.035	<0.025	<0.5	0.26	<0.05	<0.025	<0.025	<0.025	<0.025	<0.025	<2.5	<0.025
SB-1A-15	15	10/19/10	1.2	0.18	0.1	0.084	0.27	0.22	0.0076	<0.0047	<0.0047	<0.0047	<0.0047	<0.47	0.0049
SB-1A-20	20	10/19/10	770	<4.9	5.7	9.8	63	<0.05	<0.025	<0.025	<0.025	<0.025	<0.025	<2.5	<0.025
SB-1A-25	25	10/19/10	1,400	5.2	34	17	110	<0.05	<0.025	<0.025	<0.025	<0.025	<0.025	<2.5	<0.025
SB-1A-30	30	10/19/10	0.38	0.0061	0.027	0.012	0.075	<0.0091	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.46	<0.0046
SB-1A-35	35	10/19/10	6.2	0.19	0.65	0.21	26	<0.04	<0.02	<0.025	<0.025	<0.025	<0.02	<2	<0.02
SB-2-5	5	10/19/10	<0.23	<0.0047	<0.0047	<0.0047	<0.0093	0.024	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.47	<0.0047
SB-2-10	10	10/19/10	29	0.044	<0.025	0.8	<0.96	<0.05	<0.025	<0.025	<0.025	<0.025	<0.025	<2.5	<0.025
SB-2-15	15	10/19/10	110	0.058	<0.025	0.94	<0.98	<0.05	<0.025	<0.025	<0.025	<0.025	<0.025	<2.5	<0.025
SB-2-19	19	10/19/10	<0.24	<0.0049	<0.0049	0.043	<0.0097	0.028	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.49	<0.0049
SB-2-25	25	10/19/10	<0.23	<0.0046	<0.0046	0.0047	0.021	<0.0093	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.46	<0.0046
SB-3-5	5	10/18/2010	<0.24	<0.0049	<0.0049	<0.0049	<0.0098	<0.0098	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.49	<0.0049
SB-3-10	10	10/18/2010	<0.24	<0.0048	<0.0048	<0.0048	<0.0097	<0.0097	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.48	<0.0048
SB-3-15	15	10/18/2010	<0.24	<0.0047	<0.0047	<0.0047	<0.0094	<0.0094	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.47	<0.0047
SB-3-20	20	10/18/2010	<0.24	<0.0048	<0.0048	<0.0048	<0.0097	<0.0097	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.48	<0.0048
SB-5-5	5	10/18/2010	<0.24	<0.0048	<0.0048	<0.0048	<0.0097	0.46	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.48	<0.0048
SB-5-10	10	10/18/2010	350	<0.5	<0.5	4.7	10	0.23	0.14	<0.0048	<0.0048	0.034	<0.0048	<0.48	<0.0048
SB-5-15	15	10/18/2010	1.7	0.17	<0.0046	0.1	0.08	0.059	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.46	<0.0046
SB-5-20	20	10/18/2010	<0.25	<0.0049	<0.0049	<0.0049	<0.0099	<0.0099	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.49	<0.0049
SB-5-25	25	10/18/2010	<0.23	<0.0046	<0.0046	<0.0046	<0.0093	0.27	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.46	<0.0046
SB-6-5	5	10/18/2010	<0.23	<0.0046	<0.0046	<0.0046	<0.0093	0.27	<0.0046	<0.0046	<0.0046	<0.0046	<0.0046	<0.46	<0.0046
SB-6-10	10	10/18/2010	960	<2.5	<2.5	<2.5	<4.9	<0.05	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
SB-6-15	15	10/18/2010	<0.24	<0.0049	<0.0049	<0.0049	<0.0097	0.2	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	<0.49	<0.0049
SB-6-20	20	10/18/2010	<0.24	<0.0049	<0.0049	<0.0049	<0.0098	0.32	0.14	<0.0049	<0.0049	<0.0049	<0.0049	<0.49	<0.0049
SB-6-25	25	10/18/2010	<0.24	<0.0048	<0.0048	<0.0048	<0.0097	<0.0097	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.48	<0.0048

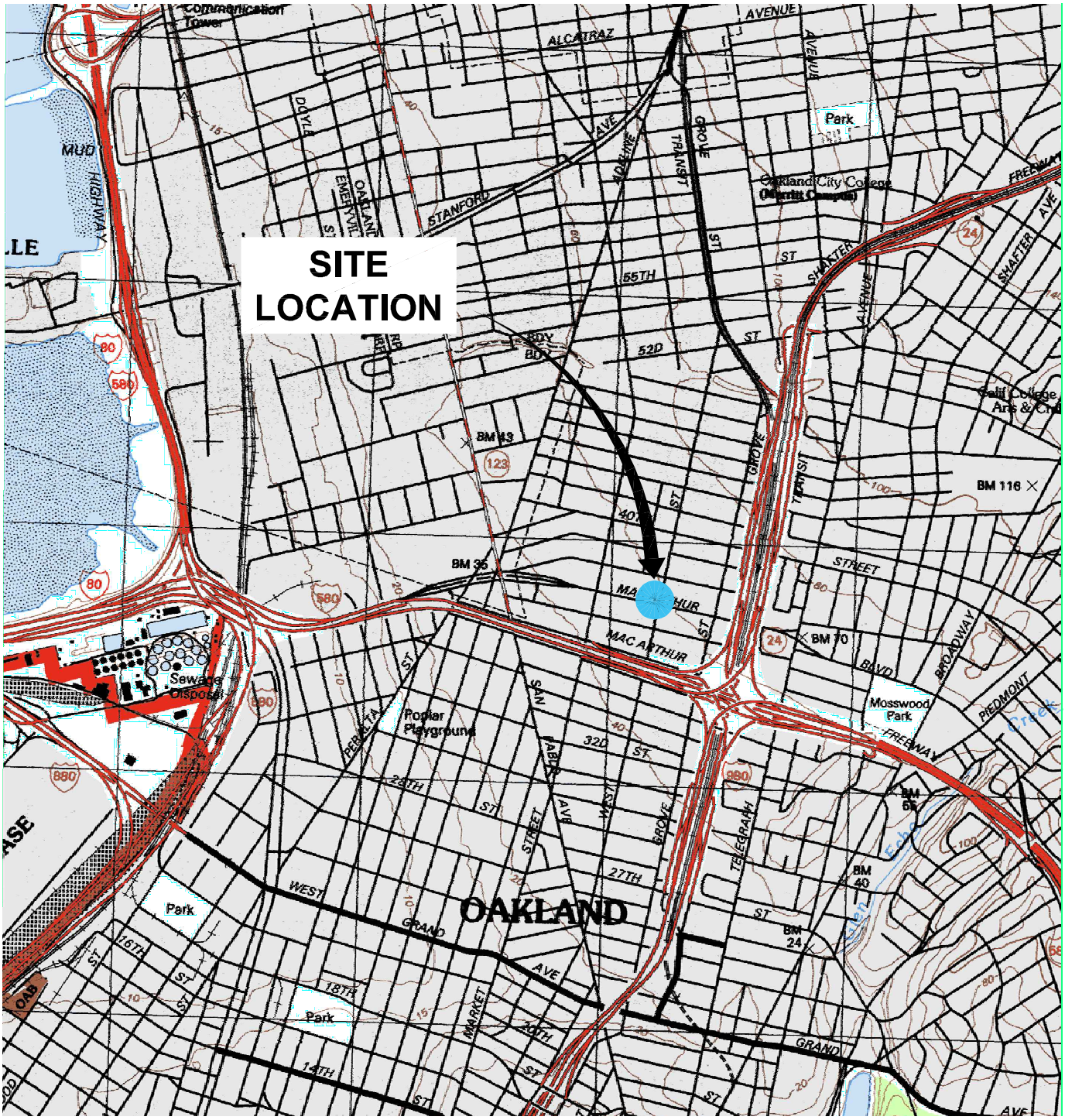
Explanation

mg/Kg	Milligrams per Kilogram
--	Not analyzed
<4.6	Not detected at concentration threshold as shown
770	Exceeds Comercial ESLs
TPHg	Total petroleum hydrocarbons as gasoline (i.e. purgeable hydrocarbons)

1,2 DCA	1,2 dichloroethane
EDB	Ethylene dibromide
DIPE	Di-isopropyl ether
ETBE	Ethyl tert-butyl ether
TAME	Tert-amyl methyl ether
TBA	Tert-butyl ether
MTBE	Methyl tert-butyl ether

ARCADIS

Figures



NOTE:
1. BASE MAP USGS 7.5 MIN. TOPO. QUAD, OAKLAND WEST CALIFORNIA 1997.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

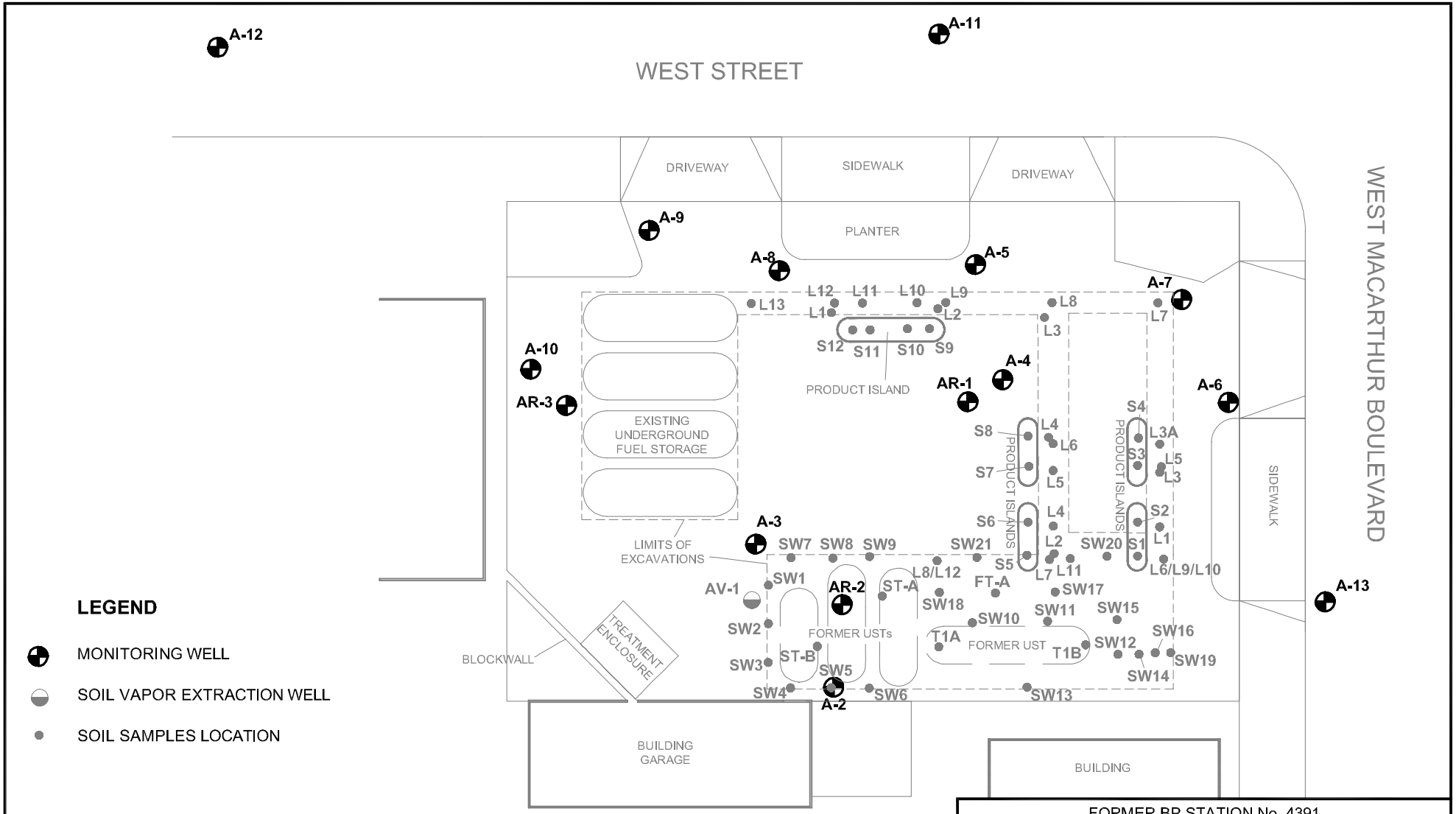
FORMER ARCO SERVICE STATION No. 4391
731 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA
SOIL AND GROUNDWATER INVESTIGATION REPORT

SITE LOCATION MAP

ARCADIS

FIGURE
1

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*:OFF=*REF*
G:\ENVCAD\Emeryville\ACT\GP09BPNA\C110\C0000\RevWorkPlan\04391 Site Plan 1.dwg LAYOUT: 2 SAVED: 11/4/2010 2:29 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 11/4/2010 2:49 PM BY: BEARDSLEY, DANIEL



LEGEND

- MONITORING WELL
- SOIL VAPOR EXTRACTION WELL
- SOIL SAMPLES LOCATION

0 30' 60'

Approximate Scale: 1 in. =60 ft.

NOTE:
SITE MAP ADAPTED FROM FIGURES BY OTHERS.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

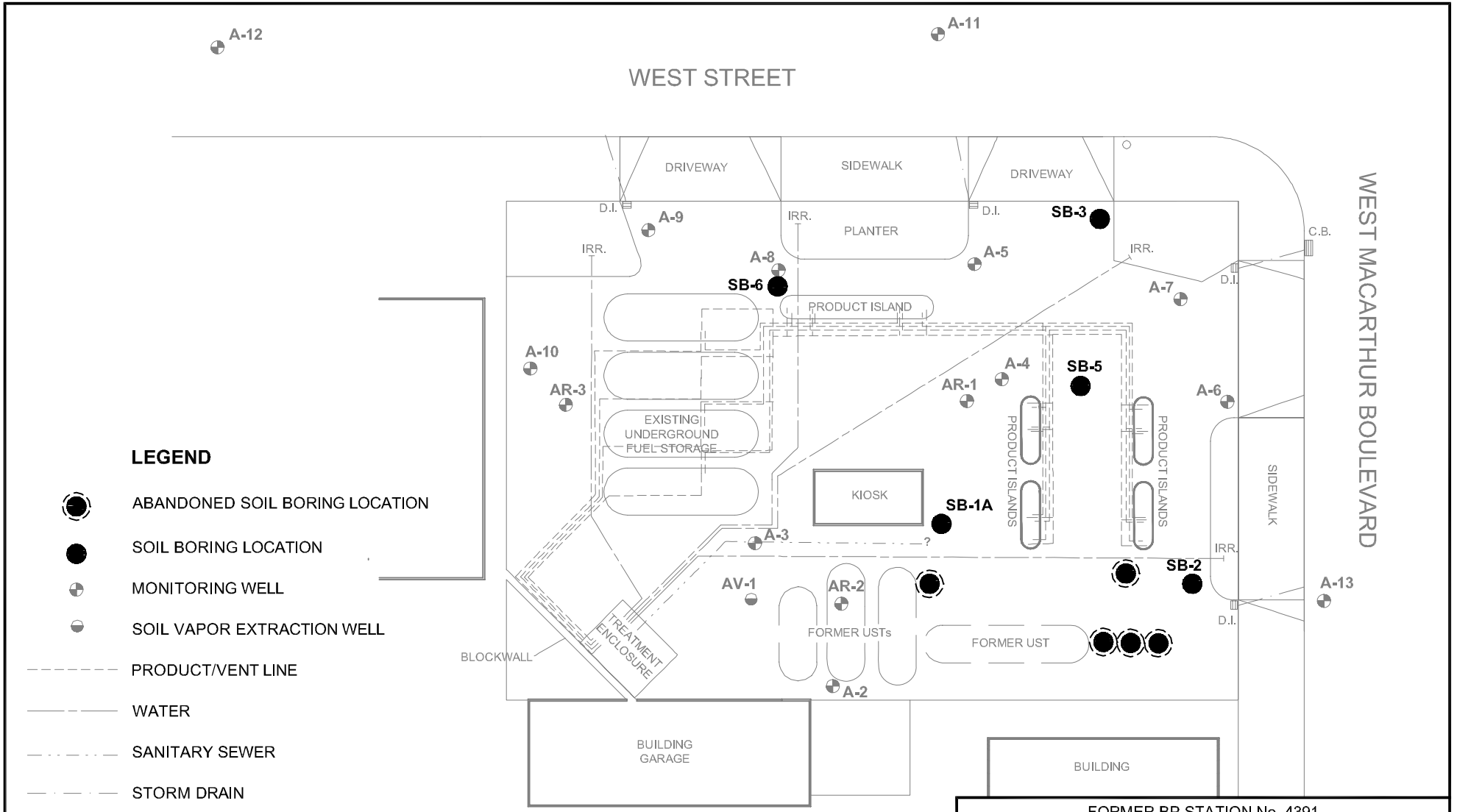
FORMER BP STATION No. 4391
731 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA
SOIL AND GROUNDWATER INVESTIGATION REPORT

SITE MAP WITH HISTORICAL SAMPLING LOCATIONS

ARCADIS

FIGURE
2

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*:OFF=*REF*
G:\ENVCAD\Emeryville\ACT\GP09BPNA\C110\C0000\RevWorkPlan\04391 Site Plan 2.dwg LAYOUT: 3 SAVED: 11/4/2010 2:29 PM ACADVER: 18.0S (LMS TECH) PAGESETUP: -- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 11/4/2010 2:47 PM BY: BEARDSLEY, DANIEL



LEGEND

- ABANDONED SOIL BORING LOCATION
- SOIL BORING LOCATION
- MONITORING WELL
- SOIL VAPOR EXTRACTION WELL
- PRODUCT/VENT LINE
- WATER
- SANITARY SEWER
- STORM DRAIN

0 30' 60'

Approximate Scale: 1 in. =60 ft.

NOTE:
SITE MAP ADAPTED FROM FIGURES BY OTHERS.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

FORMER BP STATION No. 4391
731 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA
SOIL AND GROUNDWATER INVESTIGATION REPORT

SITE MAP WITH BORING LOCATIONS AND UNDERGROUND UTILITIES

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FIGURE
3

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Appendix A

Alameda County Public Works
Soil Boring Permit

Alameda County Public Works Agency - Water Resources Well Permit

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 10/07/2010 By jamesy

Permit Numbers: W2010-0725
Permits Valid from 10/18/2010 to 10/22/2010

Application Id: 1286392921783 **City of Project Site:** Oakland
Site Location: 731 West MacArthur Boulevard, Oakland, Ca/Northern Portion of the Site
Project Start Date: 10/18/2010 **Completion Date:** 10/22/2010
Assigned Inspector: Contact Ron Smalley at (510) 670-5407 or ronaldws@acpwa.org

Applicant:	ARCADIS U.S. - Ben McKenna McKenna 2033 North Main Street, Suite 340, Walnut Creek, CA 94596	**Phone:** 925-296-7857
Property Owner:	Nick Goyal 28456 Century Street, Hayward, CA 94545	**Phone:** --
Client:	Ben McKenna 2033 North Main Street, Suite 340, Walnut Creek, CA 94596	**Phone:** 925-296-7857
Contact:	Ben McKenna	**Phone:** 925-296-7857 **Cell:** 916-508-5536

Total Due: $265.00
Receipt Number: WR2010-0335 **Total Amount Paid:** $265.00
Payer Name : Benino P. McKenna Paid By: VISA **PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Geo Probes-Sampling 24 to 72 hours only - 6 Boreholes
Driller: WDC Exploration - Lic #: 283326 - Method: DP **Work Total: $265.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2010-0725	10/07/2010	01/16/2011	6	3.50 in.	35.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.

3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

4. Applicant shall contact Ron Smalley for an inspection time at 510-670-5407 or email to ronaldws@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

5. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled,

properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

6. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

7. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

8. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

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Appendix B

Soil Boring Logs

Date Start/Finish: 10/19/2010
Drilling Company: WDC Exploration & Wells
Driller's Name: WDC Exploration & Wells
Drilling Method: Hand Auger / Direct Push
Bit Size: NA
Auger Size: NA
Rig Type: Geoprobe
Sampling Method: Acetate Sleeve

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 35 ft
Surface Elevation: NA

Description By: R. Moniz
Reviewed By: Hollis Phillips, PG

Well/Boring ID: SB-1A

Client: British Petroleum

Location: Former ARCO Station #4931
731 West MacArthur Boulevard
Oakland, California

DEPTH	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Asphalt	
								FILL	
					1			(GLEY2 6/5B) CLAY (CL), plastic, firm, moist	
		HA			3	X			
5								SAA, bluish gray (GLEY2 6/5B) and brown (10YR 5/3), trace granules, plastic, hard, moist	
	1	DP	5		2				
					41				
					41				
					16	X			
10					7				
					4			2" angular pebble lense	
	2	DP	5		1.6			SAA, 10% bluish gray (GLEY2 6/5B) and 90% strong brown (7.5YR 5/6)	
					41				
					11	X			
15					4				
					13				
	3	DP	5		7				
					31				
20						X		GRAVELLY CLAY (GC) medium pebble, angular, hard, moist	

ARCADIS
Infrastructure, environment, buildings

Remarks: bgs = below ground surface; DP = direct push; ft = feet; HA = hand auger; in = inch; NA = not applicable; PG = professional geologist; PID = photoionization detector; ppm = parts per million; SAA = same as above

Hand auger boring to 5 ft bgs; direct push from 5 ft to 35 ft bgs.

Analtyical samples were collected at 5, 10, 14, 20, 25, 30, and 35 feet.

Date Start/Finish: 10/19/2010
Drilling Company: WDC Exploration & Wells
Driller's Name: WDC Exploration & Wells
Drilling Method: Hand Auger / Direct Push
Bit Size: NA
Auger Size: NA
Rig Type: Geoprobe
Sampling Method: Acetate Sleeve

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 35 ft
Surface Elevation: NA

Description By: R. Moniz
Reviewed By: Hollis Phillips, PG

Well/Boring ID: SB-1A

Client: British Petroleum

Location: Former ARCO Station #4931
731 West MacArthur Boulevard
Oakland, California

DEPTH	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20					806				
					2,550				
					250			Medium- to coarse-grained SAND (SP), trace silt, trace gravels, loose, wet	
	4	DP	5		180				
					450				
25					400			Gravelly sand with clay, firm, wet	
					5				
					4			CLAY (CL), brown (10YR 5/3), trace sand and gravel, firm, wet	
	5	DP	5		16			CLAYEY SAND (SC), black (N3), trace gravel	
					3				
30					7			SILT (ML), pale yellow (2.5Y 7/3) trace sand and clay, very fine-grained, low plasticity, firm, moist	
					6			Possible slough	
								CLAY (CL), pale yellow (2.5Y 7/3), trace granules, plastic, moist	
	6	DP	5		1				
					4				
35					6			End of boring at 35 ft bgs.	
40									

ARCADIS
Infrastructure, environment, buildings

Remarks: bgs = below ground surface; DP = direct push; ft = feet; HA = hand auger; in = inch; NA = not applicable; PG = professional geologist; PID = photoionization detector; ppm = parts per million; SAA = same as above

Hand auger boring to 5 ft bgs; direct push from 5 ft to 35 ft bgs.

Analtyical samples were collected at 5, 10, 14, 20, 25, 30, and 35 feet.

Date Start/Finish: 10/19/2010
Drilling Company: WDC Exploration & Wells
Driller's Name: WDC Exploration & Wells
Drilling Method: Hand Auger / Direct Push
Bit Size: NA
Auger Size: NA
Rig Type: Geoprobe
Sampling Method: Acetate Sleeve

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 25 ft
Surface Elevation: NA

Description By: R. Moniz
Reviewed By: Hollis Phillips, PG

Well/Boring ID: SB-2

Client: British Petroleum

Location: Former ARCO Station #4931
731 West MacArthur Boulevard
Oakland, California

DEPTH	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Asphalt	
								FILL	
								CLAY (CL), bluish gray (GLEY2 6/5B) and yellowish brown (10YR 5/4) trace granules, hard, moist	
		HA							
5								CLAY (CL), 40% bluish gray (GLEY2 6/5B) and 60% yellowish brown (10YR 5/4) trace granules, hard, moist	
					2				
					14				
	1	DP	5		26				
					42				
10								SAA, 20% bluish gray (GLEY2 6/5B) and 80% yellowish brown (10YR 5/4)	
					53			SAA, 20% bluish gray (GLEY2 6/5B) and 80% yellowish brown (10YR 4/4)	
					25				
	2	DP	5		15				
					9				
15					9				
					17			CLAY (CL), light olive brown (2.5Y 5/4), trace granules, firm, moist	
					6				
					1.8				
	3	DP	3.5		8				
								SAND (SP), dark yellowish brown (10YR 4/4), trace clay and gravel, firm, wet	
					18			No recovery	
20									

ARCADIS
Infrastructure, environment, buildings

Remarks: bgs = below ground surface; DP = direct push; ft = feet; HA = hand auger; in = inch; NA = not applicable; PG = professional geologist; PID = photoionization detector; ppm = parts per million; SAA = same as above

Hand auger boring to 5 ft bgs; direct push from 5 ft to 25 ft bgs.

Analtyical samples were collected at 5, 10, 15, 19, and 25 feet.

Date Start/Finish: 10/19/2010
Drilling Company: WDC Exploration & Wells
Driller's Name: WDC Exploration & Wells
Drilling Method: Hand Auger / Direct Push
Bit Size: NA
Auger Size: NA
Rig Type: Geoprobe
Sampling Method:
Acetate Sleeve

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 25 ft
Surface Elevation: NA

Description By: R. Moniz
Reviewed By: Hollis Phillips, PG

Well/Boring ID: SB-2

Client: British Petroleum

Location: Former ARCO Station #4931
731 West MacArthur Boulevard
Oakland, California

DEPTH	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20									
	4	DP	5		23 45 7			CLAY (CL), light olive brown (2.5Y 5/4), trace granules, firm, moist	
					6			GRAVELLY SAND with clay, hard, wet	
25					1			End of boring at 25 ft bgs.	
30									
35									
40									

ARCADIS
Infrastructure, environment, buildings

Remarks: bgs = below ground surface; DP = direct push; ft = feet; HA = hand auger; in = inch; NA = not applicable; PG = professional geologist; PID = photoionization detector; ppm = parts per million; SAA = same as above

Hand auger boring to 5 ft bgs; direct push from 5 ft to 25 ft bgs.

Analtyical samples were collected at 5, 10, 15, 19, and 25 feet.

Date Start/Finish: 10/18/2010
Drilling Company: WDC Exploration & Wells
Driller's Name: WDC Exploration & Wells
Drilling Method: Hand Auger / Direct Push
Bit Size: NA
Auger Size: NA
Rig Type: Geoprobe
Sampling Method: Acetate Sleeve

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 25 ft
Surface Elevation: NA

Description By: R. Moniz
Reviewed By: Hollis Phillips, PG

Well/Boring ID: SB-3

Client: British Petroleum

Location: Former ARCO Station #4931
731 West MacArthur Boulevard
Oakland, California

DEPTH	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Asphalt	
					0			CLAY (CL), olive gray (5Y 4/2), trace silt and granules, very hard, moist, trace orange staining	
		HA			0				
					0	X			
5					0				
	1	DP	5		0				
					0	X			
10					0				
					0				
	2	DP	5		1			.5' sand lamination lense	
					0			CLAY (CL), dark yellowish brown (10YR 4/4), trace granules, firm, moist	
					0	X			
15					0				
	3	DP	5		0				
					0	X		CLAY (CL), dark yellowish brown (10YR 4/4), some rounded granules, firm	
20									

ARCADIS
Infrastructure, environment, buildings

Remarks: bgs = below ground surface; DP = direct push; ft = feet; HA = hand auger; in = inch; NA = not applicable; PG = professional geologist; PID = photoionization detector; ppm = parts per million; SAA = same as above

Hand auger boring to 5 ft bgs; direct push from 5 ft to 25 ft bgs.

Analtyical samples were collected at 5, 10, 15, and 20 feet.

Date Start/Finish: 10/18/2010
Drilling Company: WDC Exploration & Wells
Driller's Name: WDC Exploration & Wells
Drilling Method: Hand Auger / Direct Push
Bit Size: NA
Auger Size: NA
Rig Type: Geoprobe
Sampling Method:
Acetate Sleeve

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 25 ft
Surface Elevation: NA

Description By: R. Moniz
Reviewed By: Hollis Phillips, PG

Well/Boring ID: SB-3

Client: British Petroleum

Location: Former ARCO Station #4931
731 West MacArthur Boulevard
Oakland, California

DEPTH	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20	4	DP	1		0			No Recovery	
25								End of boring at 25 ft bgs.	
30									
35									
40									

ARCADIS
Infrastructure, environment, buildings

Remarks: bgs = below ground surface; DP = direct push; ft = feet; HA = hand auger; in = inch; NA = not applicable; PG = professional geologist; PID = photoionization detector; ppm = parts per million; SAA = same as above

Hand auger boring to 5 ft bgs; direct push from 5 ft to 25 ft bgs.

Analtyical samples were collected at 5, 10, 15, and 20 feet.

Date Start/Finish: 10/18/2010
Drilling Company: WDC Exploration & Wells
Driller's Name: WDC Exploration & Wells
Drilling Method: Hand Auger / Direct Push
Bit Size: NA
Auger Size: NA
Rig Type: Geoprobe
Sampling Method: Acetate Sleeve

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 25 ft
Surface Elevation: NA

Description By: R. Moniz
Reviewed By: Hollis Phillips, PG

Well/Boring ID: SB-5

Client: British Petroleum

Location: Former ARCO Station #4931
731 West MacArthur Boulevard
Oakland, California

DEPTH	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Asphalt	
					0			FILL	
		HA			0			CLAY (CL), bluish gray (GLEY 2 6/5B) and brown (10YR 5/3) trace granules, plastic, subangular to subrounded, moist	
5					1				
	1	DP	5		110				
					260				
					200				
					145				
10					178				
					89				
	2	DP	5		64			CLAY (CL), bluish gray (GLEY2 6/5B) and brown (10YR 5/3), some gravels, plastic, hard, poorly graded, moist	
					119				
					45				
15					4				
					11			SAA, dark yellowish brown (10YR 4/4), trace granules, subangular to subrounded, firm, moist	
					14				
	3	DP	5		1				
					1			SAA, yellowish brown (10YR 5/4), soft	
20									

ARCADIS
Infrastructure, environment, buildings

Remarks: bgs = below ground surface; DP = direct push; ft = feet; HA = hand auger; in = inch; NA = not applicable; PG = professional geologist; PID = photoionization detector; ppm = parts per million; SAA = same as above

Hand auger boring to 5 ft bgs; direct push from 5 ft to 25 ft bgs.

Analtyical samples were collected at 5, 10, 15, and 20 feet.

Date Start/Finish: 10/18/2010
Drilling Company: WDC Exploration & Wells
Driller's Name: WDC Exploration & Wells
Drilling Method: Hand Auger / Direct Push
Bit Size: NA
Auger Size: NA
Rig Type: Geoprobe
Sampling Method:
Acetate Sleeve

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 25 ft
Surface Elevation: NA

Description By: R. Moniz
Reviewed By: Hollis Phillips, PG

Well/Boring ID: SB-5

Client: British Petroleum

Location: Former ARCO Station #4931
731 West MacArthur Boulevard
Oakland, California

DEPTH	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20					2				
					2				
					6				
	4	DP	5		1			SAA, trace sand, fine-grained	
					0			SAND (SP), dark yellowish brown (10YR 4/4), trace clay and gravel, subangular to rounded, hard	
25					0			End of boring at 25 ft bgs.	
30									
35									
40									

ARCADIS
Infrastructure, environment, buildings

Remarks: bgs = below ground surface; DP = direct push; ft = feet; HA = hand auger; in = inch; NA = not applicable; PG = professional geologist; PID = photoionization detector; ppm = parts per million; SAA = same as above

Hand auger boring to 5 ft bgs; direct push from 5 ft to 25 ft bgs.

Analtyical samples were collected at 5, 10, 15, and 20 feet.

Date Start/Finish: 10/18/2010
Drilling Company: WDC Exploration & Wells
Driller's Name: WDC Exploration & Wells
Drilling Method: Hand Auger / Direct Push
Bit Size: NA
Auger Size: NA
Rig Type: Geoprobe
Sampling Method: Acetate Sleeve

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 25 ft
Surface Elevation: NA

Description By: R. Moniz
Reviewed By: Hollis Phillips, PG

Well/Boring ID: SB-6

Client: British Petroleum

Location: Former ARCO Station #4931
731 West MacArthur Boulevard
Oakland, California

DEPTH	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Concrete	
					600			CLAY (CL), bluish gray (GLEY2 6/5B), plastic, firm, moist	
		HA			6	X		SANDY CLAY with silt, olive gray (5Y 4/2), some sand, trace gravel, trace orange staining	
5					32				
					140				
					380				
	1	DP	5		414			SANDY CLAY, dark greenish gray (GLEY1 4/10GY), no orange staining	
					479	X			
10									
					412			CLAY (CL), dark greenish gray (GLEY1 4/5GY), plastic, soft, moist	
					120				
	2	DP	5		106			3" SAND (SP), some gravel, little clay CLAY (CL), dark greenish gray (GLEY1 4/5GY), trace granules, very hard, trace orange staining, moist	
					6	X			
15					3				
					8				
	3	DP	5					CLAY (CL), yellowish brown (10YR 5/4), trace granules, hard, increased orange staining	
						X		SAA, but some sand, trace gravel, firm	
20									

ARCADIS
Infrastructure, environment, buildings

Remarks: bgs = below ground surface; DP = direct push; ft = feet; HA = hand auger; in = inch; NA = not applicable; PG = professional geologist; PID = photoionization detector; ppm = parts per million; SAA = same as above

Hand auger boring to 5 ft bgs; direct push from 5 ft to 25 ft bgs.

Analtyical samples were collected at 5, 10, 15, 20, and 25 feet.

Date Start/Finish: 10/18/2010
Drilling Company: WDC Exploration & Wells
Driller's Name: WDC Exploration & Wells
Drilling Method: Hand Auger / Direct Push
Bit Size: NA
Auger Size: NA
Rig Type: Geoprobe
Sampling Method: Acetate Sleeve

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth: 25 ft
Surface Elevation: NA

Description By: R. Moniz
Reviewed By: Hollis Phillips, PG

Well/Boring ID: SB-6

Client: British Petroleum

Location: Former ARCO Station #4931
731 West MacArthur Boulevard
Oakland, California

DEPTH	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20					25				
					6			Possible slough	
					2			CLAY (CL), dark greenish gray (GLEY1 4/10GY), some sand, moist	
	4	DP	5		1			SAND (SP) and GRAVEL (GP), olive brown (2.5Y 4/4), angular, poorly sorted, wet	
					4	X			
25					8			End of boring at 25 ft bgs.	
30									
35									
40									

ARCADIS
Infrastructure, environment, buildings

Remarks: bgs = below ground surface; DP = direct push; ft = feet; HA = hand auger; in = inch; NA = not applicable; PG = professional geologist; PID = photoionization detector; ppm = parts per million; SAA = same as above

Hand auger boring to 5 ft bgs; direct push from 5 ft to 25 ft bgs.

Analtyical samples were collected at 5, 10, 15, 20, and 25 feet.

ARCADIS

Appendix C

Field Documentation

Field Report

ARCADIS Project Number:	Dates of Site Visit:
60097BPNA.CH0.00000	Oct. 18-19, 2010
ARCADIS Project Name:	**Location of Project:**
BP04931	731 W. MacArthur Blvd
ARCADIS Personnel Present:	**Other Persons Present:**
Rob Moniz	Robert & Iran (WDC)

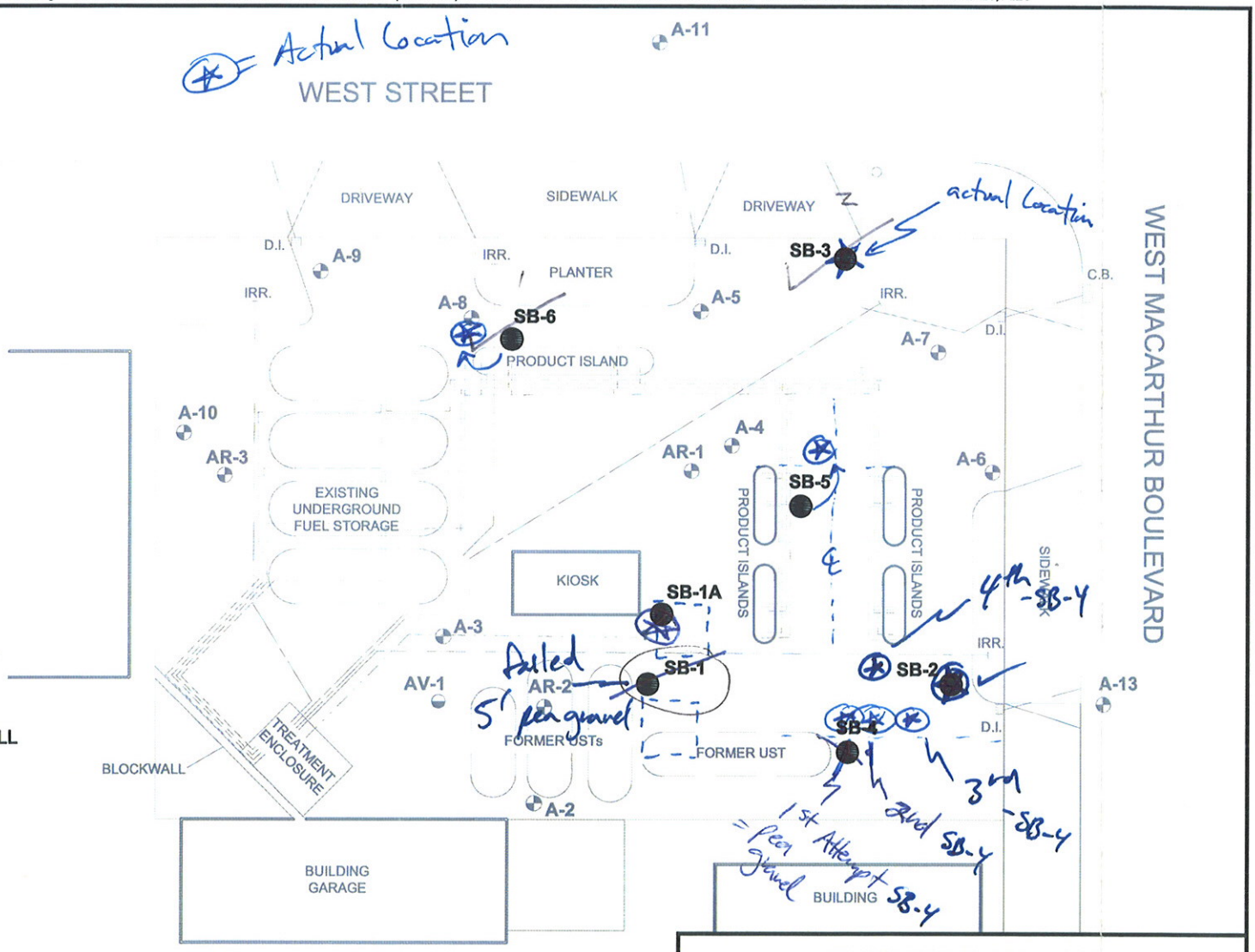
Purpose of Site Visit:
(6) Soil borings, hand auger to 5', Sample every 5'
(5) TD's to 25', (1) TD to 35' = Plan

Date & Time:	Activities:
10/18 0730	on-site, walk marked out Locations, talk w/ clerk working Kiosk.
0740	WDC on-site, H & S Tailgate, discuss Scope
0900	Begin ~~drilling~~ hand auger @ SB-6 after chipping through concrete.
1000	@ 25' on SB-6, strong odor ~10'. Call for Smally w/ Alameda County. Backfill to surface w/ neat cement. Characterize cores.
1045	Ron on site
1130	Mob to SB-3, break through AC. Auger to 5'
1200	Break for lunch
	Note: PID checked out from Emeryville Office, Cal'd w/ Isobutylene + Fresh air prior to use.
1245	Resume SB-3, similar clays as SB-6, No odor,
1330	- Backfill w/ neat cement, dye top to match AC. move to SB-5. No recovery in SB-3 after 20' = No 25' Sample.
	Cabled Times = SB6 = 1030, 1035, 1040, 1045, 1050.
	SB-3 = 1300, 1305, 1310, 1315.
	SB-5 = 1430, 1435, 1440, 1445, 1450.
1530	- Demob - All 3 holes backfilled to surface carefully

Weather: P. Cloudy AM Sunny PM	Signature & Date: 10/18/10

Site Visit Report BP04931 10/19/10 2 of 2

Date & Time:	Activities:
10/19/20	— Day 2 of 2 —
0900	on-site, H&S tailgate
	Set up on SB-1, all pea gravel during hand auger = Move NW to SB-1A
1100	- Start sampling SB-1A @ 5, 10, 15, 20, 25, ~~30~~, & 35'
	- Lunch, H&S
1145	Set up on SB-4 but 5' of pea gravel = move 3.5' N. Same 5' = move 5' N again = Same 5'
	Call Tobin, he calls Hollis, we move to SB-2 & complete to 25'.
1600	- Attempt 1 more SB-4 moving west of middle hole of original 3. After 2' of pea gravel (1' more than the thickest seen in any completed boring) we stop.
1640	- off site after demob, clean up, & backfill remaining holes w/ neat cement.
	- ROM returns equip to Exille office
1740	- Courier given Samples & COC's @ WC office
	Dwnm composit sample placed on separate COC.
1830	- field sheets scanned, originals left on in McKenna's cube.



FORMER BP STATION No. 4391
731 WEST MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA
REVISED WORK PLAN

SITE PLAN WITH PROPOSED BORING LOCATIONS AND UNDERGROUND UTILITIES

NOTE:
SITE MAP ADAPTED FROM FIGURES BY OTHERS.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

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FIGURE
2

ARCADIS

Document Control Number:TGM - GP07BPNA.C0100.C0000
TGM + *project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year*

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: BP 04931			**Project Location:** 731 W. MacArthur
Date: 10/19	**Time:** 800	**Conducted by:** KEM	**Signature/Title:** [signature] Geo Tech
Client: BP		**Client Contact:**	**Subcontractor companies:** WBC

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 Drilling
2 set up
3 Rear Cone
4 hand auger
5 drill
6 back fill

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☐ If there are none, write "None" here: ____

If yes, describe them here: ____

How will they be controlled? ____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☒ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JLAs or procedures are available?	☒ Field teams to "dirty" JLAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: rig

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H)	☒ Motion (i.e., traffic, moving water) (L M H)	☒ Mechanical (i.e., augers, motors) (L M H)
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☐ Environment (i.e., heat, cold, ice) (L M H)
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☒ Sound (i.e., machinery, generators) (L M H)	☒ Personal (i.e. alone, night, not fit) (L M H)	☐ Driving (i.e. car, ATV, boat, dozer) (L M H)

Continue TRACK Process on Page 2

ARCADIS

Document Control Number:TGM - _____

TGM + *project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year*

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: BP04931		**Project Location:** 731 W. MacArthur	
Date: 10/19	**Time:** 0800	**Conducted by:**	**Signature/Title:** Geo II
Client: BP		**Client Contact:**	**Subcontractor companies:** WDC

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 Drive 3 Direct Push 5 backfill

2 hand auger 4 Sample 6 demob.

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☒ Other permit county	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☒ JLAs or procedures are available?	☒ Field teams to "dirty" JLAs, as needed?	☒ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☐ Gravity (i.e., ladder, scaffold, trips) (L M H)	☐ Motion (i.e., traffic, moving water) (L M H)	☐ Mechanical (i.e., augers, motors) (L M H)
☐ Electrical (i.e., utilities, lightning) (L M H)	☐ Pressure (i.e., gas cylinders, wells) (L M H)	☐ Environment (i.e., heat, cold, ice) (L M H)
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☐ Sound (i.e., machinery, generators) (L M H)	☒ Personal (i.e. alone, night, not fit) (L M H) locals	☒ Driving (i.e. car, ATV, boat, dozer) (L M H)

Continue TRACK Process on Page 2

ARCADIS

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Boring Number:
RDM	10/19/10	WDC	BP04931	Direct Push	SB-1A

See Unified Soil Classification System for sampling method, classifications and laboratory testing methods.	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water ▽ Static Water ▼	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	2			35		

Feet (bgs)	Boring or Well Completion	Depth. (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID (ppm)	Sample Name		Feet (bgs)
1	neat cement					Asphalt				1
2						Fill				2
3						Clay Gley 2 6/5B, moist, firm, plastic	1			3
4										4
5							3			5
6								SB-1A-5		6
7						Clay, mix of 2 colors, moist, hard 50/50 Gley 2 6/5B / 10YR 5/3 trace gravels, plastic	2			7
8							41			8
9							41			9
10							16			10
11						@ 11', 2" of angular pebble lens.	7	SB-1A-10		11
12							4			12
13						Clay, Mix of 2 colors, moist, hard. 90/10% 7.5YR 5/6 / Gley 2 6/5B	1.6			13
14							41			14
15							411	SB-1A-14		15
16							#-			16
17							4			17
18							13			18
19							7			19
20						Clay and gravel, angular Med. Pebble moist, hard.	31			20
21		▽					806	SB-1A-20		21
22						transitions to wet, Med → V. Coarse Sand w/ fines, Soft. Black in Water	2,550			22
23							250			23
24						gravels increase.	180			24
25						Gravely Sand w/ clay, wet, firm	450			25
							400	SB-1A-25		

Project No. _____ Date 10/19/10 Page 1 of 2

ARCADIS

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Boring Number:
PLH	10/19/10	WDC	BP04931	Direct Push	SB-1A

See Unified Soil Classification System for sampling method, classifications and laboratory testing methods.	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water ▽ Static Water ▼	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
				35		

Feet (bgs)	Boring or Well Completion	Depth, (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID/FID (ppm)	Sample Name		Feet (bgs)
26						gravelly sand w/ clay cont.	5			26
27							4			27
28						Clay w/ sand to gravel, wet, firm, Brown	16			28
29							3			29
30						gravelly Sand w/ clay, Black	7	SB-1A-30		30
31						~~Clay~~ Silt w/ Very fine Sand &	6			31
32						Clay, moist, firm, low				32
33						Plasticity, ~~Brown~~ Pale Yellow.	1			33
34						Slough? gravelly Sand w/ clay	4			34
35						Clay, Pale yellow, trace gravel, moist, plastic	6	SB-1A-35		35
36										36
37										37
38										38
39										39
40										40
41										41
42										42
43										43
44										44
45										45
46										46
47										47
48										48
49										49
50										50

Project No. _____ Date 10/19/10 Page 2 of 2

ARCADIS

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Boring Number:
REM	10/19/10	WDC	BP04931	Direct Push	SB-2

See Unified Soil Classification System for sampling method, classifications and laboratory testing methods.	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water ▽ Static Water ▼	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
				25'		

Feet (bgs)	Boring or Well Completion	Depth. (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID/FID (ppm)	Sample Name	Feet (bgs)
1	Neat cement					Asphalt			1
2						fill			2
3						Clay 6ley 2 6/5B, moist firm plastic			3
4									4
5								SB-2-5	5
6						Clay Mix 2 colors, 60/40	2		6
7						10YR5/4 / 6ley 2 6/5B, moist	14		7
8						hard, w/ trace granules	26		8
9						Same but 80/20	42		9
10							53	SB-2-10	10
11						Same but 80/20 10YR 4/4	25		11
12						6ley 2 6/5B	15		12
13							9		13
14							9		14
15						Same w/ trace sands +	17	SB-2-15	15
16						trace granules	6		16
17						Clay 2.5Y 5/4, trace granules,	19		17
18		▽				firm, moist	8		18
19						Gravely Sand w/ clay, wet, firm 10YR 4/4	18	SB-2-19	19
20					X	No Recovery			20
21							23		21
22		rem				Clay 2.5Y 5/4, trace granules firm, moist	45		22
23						transitions to	7		23
24						Gravely Sand w/ clay, wet, hard, 10 YR 4/4	6		24
25							1	SB-2-25	25

Project No. GP07BPNA.C110.C0000 Date 10/19/10 Page 1 of 1

ARCADIS

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Boring Number:
RDM	10/18/10	WDC	BP04931	Direct Push	SB-3

See Unified Soil Classification System for sampling method, classifications and laboratory testing methods.	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water ▽ Static Water ▼	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):

Feet (bgs)	Boring or Well Completion	Depth, (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID/FID (ppm)	Sample Name		Feet (bgs)
1	Neat Cement					Asphalt				1
2						Clay. w/ silt, 5Y 4/2, trace granules, trace gravel, moist, very hard, orange staining	0			2
3							0			3
4							0			4
5							0	SB-3-5		5
6							0			6
7										7
8							0			8
9										9
10						Same but only hard	0	SB-3-10		10
11							0			11
12						→ @ 12' Sand Lamination	1			12
13						Same and back to Very hard.				13
14							0			14
15						Clay 10YR 4/4, firm, moist trace granules	0	SB-3-15		15
16						Same but Very hard	0			16
17										17
18							0			18
19										19
20		▽				Clay, Little granules (rounded)	0			20
21		▼				10YR 4/4 firm	0	SB-3-20		21
22						Same as Slough		SB-3-e		22
23						No Recovery				23
24										24
25										25

Project No. GP09BPNA.C110.C0000 Date 10/18/10 Page 1 of 1

ARCADIS

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Boring Number:
KEM	10/18/10	WDC	BP04931	Direct Push	SB-5

See Unified Soil Classification System for sampling method, classifications and laboratory testing methods.	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water ▽ Static Water ▼	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
				25		

Feet (bgs)	Boring or Well Completion	Depth, (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID (ppm)	Sample Name		Feet (bgs)
1	Neat cement					Concrete Fill Clay, Gley 2 6/5B + 10 YR 5/3 mixed, hard, moist, trace sub round/sub angular granules, plastic	0			1
2										2
3							0			3
4										4
5							1	SB-5-5		5
6						Same	110			6
7							260			7
8							200			8
9							145			9
10							178	SB-5-10		10
11						Same	89			11
12							64			12
13						Same, % of gravel increases as does size of gravels, from 75% to >10%, & size from granules to large pebble.	119			13
14							45			14
15							4	SB-5-15		15
16							11			16
17						Same as above but Very hard.	14			17
18						Clay 10YR 4/4, firm, moist, trace sub r/sub a granules (5%)	1			18
19							1			19
20						Clay 10 YR 5/4, Soft, more moist trace granules increases to 10%	2	SB-5-20		20
21							2			21
22						Same but ~~concrete~~ gravel w/ trace fine Sand	6			22
23							1			23
24						Sand w/ some gravels (granules, rand to sub angular) & trace clay. hard, 10YR 4/4	0			24
25							0			25

Project No. GPOTBPNA.C110.C0000 Date 10/18/10 Page 1 of 1

ARCADIS

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Boring Number:
REM	10/18/10	WDC	BP 04931	Direct Push	SB-6

See Unified Soil Classification System for sampling method, classifications and laboratory testing methods.	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft): First Water ▽ Static Water ▼	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
				25'		

Feet (bgs)	Boring or Well Completion	Depth, (ft.)	Sample Recovery	Blows/6"	Classification Letter	Description (classification, color w/code using ASTM standard, grain shape, consistency, moisture, other, odor)	PID/FID (ppm)	Sample Name		Feet (bgs)
1	Neat Cement		/			Concrete				1
2			/		CL	Clay, Gley 2 6/5B, moist, firm plastic				2
3			/			~~Sandy~~ clay RM	6			3
4			/							4
5			/			Sandy clay w/ silt, 5Y 4/2, trace gravel moist, firm, orange stains	32	SB-6-5		5
6			/				140			6
7			/				380			7
8			/				414			8
9			/			Sandy clay, Gley 1 4/10GY, moist firm	479			9
10			/			~~Sandy~~	600	SB-6-10		10
11						Clay, Gley 1 4/5GY, moist, plastic	412			11
12						Soft	120			12
13						@ 13' - 3" ~~Sandy~~ Gravely Sand lens mixed in clay	106			13
14							6			14
15						Clay w/ trace ~~gravels~~ granules (angular),	3	SB-6-15		15
16						Very hard, moist, orange staining Gley 1 4/5GY				16
17						↓ trace granules	4			17
18						Clay 10YR 5/4, hard, moist,				18
19						much more orange throughout				19
20						(19.25')				20
21						Clay w/ Sand & trace gravels, firm, moist 10YR 5/4	25	SB-6-20		21
22						Slough, Sandy clay Gley 1 4/10GY, moist	6			22
23	▽▼					Soft	2			23
24						Clay w/ sand cont...	1			24
25						wet, Sand and gravel (angular) poorly sorted 2.5Y 4/4	4			25
							8	SB-6-25		

Project No. GP09BPNA.C110.C0000 Date 10/18/10 Page 1 of 1

ARCADIS

Appendix D

Laboratory Analytical Report and
Chain of Custody Documentation

ANALYTICAL REPORT

Job Number: 720-31250-1

Job Description: BP #4931, Oakland

For:
ARCADIS U.S., Inc.
155 Montgomery Street
Suite 1500
San Francisco, CA 94104

Attention: Hollis Phillips

Approved for release.
Dimple Sharma
Project Manager I
10/22/2010 4:28 PM

Dimple Sharma
Project Manager I
dimple.sharma@testamericainc.com
10/22/2010

cc: Mr. Jason Duda
Mr. Ben McKenna

CA ELAP Certification # 2496
The Chain(s) of Custody are included and are an integral part of this report.
The report shall not be reproduced except in full, without the written approval of the laboratory. The client, by accepting this report, also agrees not to alter any reports whether in the hard copy or electronic format and to use reasonable efforts to preserve the reports in the form and substance originally provided by TestAmerica.
A trip blank is required to be provided for volatile analyses. If trip blank results are not included in the report, either the trip blank was not submitted or requested to be analyzed.

TestAmerica Laboratories, Inc.
TestAmerica San Francisco 1220 Quarry Lane, Pleasanton, CA 94566
Tel (925) 484-1919 Fax (925) 600-3002 www.testamericainc.com

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
Method 8260B: Surrogate recovery for the following sample was outside control limits: SB-6-10 (720-31250-2). Evidence of matrix interference is present; confirmed by re-run.

No other analytical or quality issues were noted.

GC VOA
No analytical or quality issues were noted.

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-31250-1	**SB-6-5**				
TBA		270	9.3	ug/Kg	8260B/CA_LUFTMS
720-31250-2	**SB-6-10**				
Gasoline Range Organics (GRO)-C6-C12		960000	120000	ug/Kg	8260B/CA_LUFTMS
720-31250-3	**SB-6-15**				
TBA		200	9.7	ug/Kg	8260B/CA_LUFTMS
720-31250-4	**SB-6-20**				
Methyl tert-butyl ether		140	4.9	ug/Kg	8260B/CA_LUFTMS
TBA		320	9.8	ug/Kg	8260B/CA_LUFTMS
TAME		50	4.9	ug/Kg	8260B/CA_LUFTMS
720-31250-11	**SB-5-5**				
TBA		460	9.7	ug/Kg	8260B/CA_LUFTMS
720-31250-12	**SB-5-10**				
Methyl tert-butyl ether		140	4.8	ug/Kg	8260B/CA_LUFTMS
Ethylbenzene		4700	500	ug/Kg	8260B/CA_LUFTMS
Xylenes, Total		10000	1000	ug/Kg	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C6-C12		350000	25000	ug/Kg	8260B/CA_LUFTMS
TBA		230	9.7	ug/Kg	8260B/CA_LUFTMS
TAME		34	4.8	ug/Kg	8260B/CA_LUFTMS
720-31250-13	**SB-5-15**				
Benzene		170	4.6	ug/Kg	8260B/CA_LUFTMS
Ethylbenzene		100	4.6	ug/Kg	8260B/CA_LUFTMS
Xylenes, Total		80	9.3	ug/Kg	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C6-C12		1700	230	ug/Kg	8260B/CA_LUFTMS
TBA		59	9.3	ug/Kg	8260B/CA_LUFTMS

METHOD SUMMARY

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Description	Lab Location	Method	Preparation Method
Matrix Solid			
8260B / CA LUFT MS	TAL SF	SW846 8260B/CA_LUFTMS	
Purge and Trap	TAL SF		SW846 5030B

Lab References:

TAL SF = TestAmerica San Francisco

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-31250-1	SB-6-5	Solid	10/18/2010 1030	10/18/2010 1727
720-31250-2	SB-6-10	Solid	10/18/2010 1035	10/18/2010 1727
720-31250-3	SB-6-15	Solid	10/18/2010 1040	10/18/2010 1727
720-31250-4	SB-6-20	Solid	10/18/2010 1045	10/18/2010 1727
720-31250-5	SB-6-25	Solid	10/18/2010 1050	10/18/2010 1727
720-31250-6	SB-3-5	Solid	10/18/2010 1300	10/18/2010 1727
720-31250-7	SB-3-10	Solid	10/18/2010 1305	10/18/2010 1727
720-31250-8	SB-3-15	Solid	10/18/2010 1310	10/18/2010 1727
720-31250-9	SB-3-20	Solid	10/18/2010 1315	10/18/2010 1727
720-31250-11	SB-5-5	Solid	10/18/2010 1430	10/18/2010 1727
720-31250-12	SB-5-10	Solid	10/18/2010 1435	10/18/2010 1727
720-31250-13	SB-5-15	Solid	10/18/2010 1440	10/18/2010 1727
720-31250-14	SB-5-20	Solid	10/18/2010 1445	10/18/2010 1727
720-31250-15	SB-5-25	Solid	10/18/2010 1450	10/18/2010 1727

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-6-5**

Lab Sample ID: 720-31250-1 Date Sampled: 10/18/2010 1030
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80225		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80246		Lab File ID:	10201012.D
Dilution:	1.0			Initial Weight/Volume:	5.40 g
Date Analyzed:	10/20/2010 1434			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.6
Benzene		ND		4.6
EDB		ND		4.6
1,2-DCA		ND		4.6
Ethylbenzene		ND		4.6
Toluene		ND		4.6
Xylenes, Total		ND		9.3
Gasoline Range Organics (GRO)-C6-C12		ND		230
TBA		270		9.3
Ethanol		ND		460
DIPE		ND		4.6
TAME		ND		4.6
Ethyl t-butyl ether		ND		4.6

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	102		52 - 140
1,2-Dichloroethane-d4 (Surr)	101		60 - 140
Toluene-d8 (Surr)	104		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-6-10**

Lab Sample ID: 720-31250-2 Date Sampled: 10/18/2010 1035
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201039.D
Dilution:	1.0			Initial Weight/Volume:	1.00 g
Date Analyzed:	10/21/2010 0500			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
TBA		ND		50
Ethanol		ND		2500

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	0	X	52 - 140
1,2-Dichloroethane-d4 (Surr)	100		60 - 140
Toluene-d8 (Surr)	77		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-6-10**

Lab Sample ID: 720-31250-2 Date Sampled: 10/18/2010 1035
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80417		Instrument ID:	SAT 3900A
Preparation:	5030B	Prep Batch: 720-80447		Lab File ID:	31250A2 X500
Dilution:	500			Initial Weight/Volume:	10.14 g
Date Analyzed:	10/22/2010 1327			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		2500
Benzene		ND		2500
EDB		ND		2500
1,2-DCA		ND		2500
Ethylbenzene		ND		2500
Toluene		ND		2500
Xylenes, Total		ND		4900
Gasoline Range Organics (GRO)-C6-C12		960000		120000
DIPE		ND		2500
TAME		ND		2500
Ethyl t-butyl ether		ND		2500

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	225	X	66 - 148
1,2-Dichloroethane-d4 (Surr)	102		62 - 137
Toluene-d8 (Surr)	94		65 - 141

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-6-15**

Lab Sample ID: 720-31250-3 Date Sampled: 10/18/2010 1040
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80225		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80246		Lab File ID:	10201013.D
Dilution:	1.0			Initial Weight/Volume:	5.14 g
Date Analyzed:	10/20/2010 1506			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.9
Benzene		ND		4.9
EDB		ND		4.9
1,2-DCA		ND		4.9
Ethylbenzene		ND		4.9
Toluene		ND		4.9
Xylenes, Total		ND		9.7
Gasoline Range Organics (GRO)-C6-C12		ND		240
TBA		200		9.7
Ethanol		ND		490
DIPE		ND		4.9
TAME		ND		4.9
Ethyl t-butyl ether		ND		4.9

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	105		52 - 140
1,2-Dichloroethane-d4 (Surr)	101		60 - 140
Toluene-d8 (Surr)	104		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-6-20**

Lab Sample ID: 720-31250-4 Date Sampled: 10/18/2010 1045
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80225		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80246		Lab File ID:	10201014.D
Dilution:	1.0			Initial Weight/Volume:	5.11 g
Date Analyzed:	10/20/2010 1539			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		140		4.9
Benzene		ND		4.9
EDB		ND		4.9
1,2-DCA		ND		4.9
Ethylbenzene		ND		4.9
Toluene		ND		4.9
Xylenes, Total		ND		9.8
Gasoline Range Organics (GRO)-C6-C12		ND		240
TBA		320		9.8
Ethanol		ND		490
DIPE		ND		4.9
TAME		50		4.9
Ethyl t-butyl ether		ND		4.9

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	98		52 - 140
1,2-Dichloroethane-d4 (Surr)	96		60 - 140
Toluene-d8 (Surr)	102		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-6-25**

Lab Sample ID: 720-31250-5 Date Sampled: 10/18/2010 1050
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80225		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80246		Lab File ID:	10201015.D
Dilution:	1.0			Initial Weight/Volume:	5.16 g
Date Analyzed:	10/20/2010 1611			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.8
Benzene		ND		4.8
EDB		ND		4.8
1,2-DCA		ND		4.8
Ethylbenzene		ND		4.8
Toluene		ND		4.8
Xylenes, Total		ND		9.7
Gasoline Range Organics (GRO)-C6-C12		ND		240
TBA		ND		9.7
Ethanol		ND		480
DIPE		ND		4.8
TAME		ND		4.8
Ethyl t-butyl ether		ND		4.8

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	103		52 - 140
1,2-Dichloroethane-d4 (Surr)	103		60 - 140
Toluene-d8 (Surr)	104		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-3-5**

Lab Sample ID: 720-31250-6 Date Sampled: 10/18/2010 1300
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80225		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80246		Lab File ID:	10201016.D
Dilution:	1.0			Initial Weight/Volume:	5.12 g
Date Analyzed:	10/20/2010 1644			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.9
Benzene		ND		4.9
EDB		ND		4.9
1,2-DCA		ND		4.9
Ethylbenzene		ND		4.9
Toluene		ND		4.9
Xylenes, Total		ND		9.8
Gasoline Range Organics (GRO)-C6-C12		ND		240
TBA		ND		9.8
Ethanol		ND		490
DIPE		ND		4.9
TAME		ND		4.9
Ethyl t-butyl ether		ND		4.9

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	88		52 - 140
1,2-Dichloroethane-d4 (Surr)	99		60 - 140
Toluene-d8 (Surr)	98		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-3-10**

Lab Sample ID: 720-31250-7 Date Sampled: 10/18/2010 1305
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80225		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80246		Lab File ID:	10201017.D
Dilution:	1.0			Initial Weight/Volume:	5.17 g
Date Analyzed:	10/20/2010 1716			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.8
Benzene		ND		4.8
EDB		ND		4.8
1,2-DCA		ND		4.8
Ethylbenzene		ND		4.8
Toluene		ND		4.8
Xylenes, Total		ND		9.7
Gasoline Range Organics (GRO)-C6-C12		ND		240
TBA		ND		9.7
Ethanol		ND		480
DIPE		ND		4.8
TAME		ND		4.8
Ethyl t-butyl ether		ND		4.8

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	88		52 - 140
1,2-Dichloroethane-d4 (Surr)	103		60 - 140
Toluene-d8 (Surr)	96		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-3-15**

Lab Sample ID: 720-31250-8 Date Sampled: 10/18/2010 1310
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80225		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80246		Lab File ID:	10201018.D
Dilution:	1.0			Initial Weight/Volume:	5.31 g
Date Analyzed:	10/20/2010 1748			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.7
Benzene		ND		4.7
EDB		ND		4.7
1,2-DCA		ND		4.7
Ethylbenzene		ND		4.7
Toluene		ND		4.7
Xylenes, Total		ND		9.4
Gasoline Range Organics (GRO)-C6-C12		ND		240
TBA		ND		9.4
Ethanol		ND		470
DIPE		ND		4.7
TAME		ND		4.7
Ethyl t-butyl ether		ND		4.7

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	98		52 - 140
1,2-Dichloroethane-d4 (Surr)	102		60 - 140
Toluene-d8 (Surr)	101		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-3-20**

Lab Sample ID: 720-31250-9 Date Sampled: 10/18/2010 1315
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80225		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80246		Lab File ID:	10201019.D
Dilution:	1.0			Initial Weight/Volume:	5.16 g
Date Analyzed:	10/20/2010 1820			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.8
Benzene		ND		4.8
EDB		ND		4.8
1,2-DCA		ND		4.8
Ethylbenzene		ND		4.8
Toluene		ND		4.8
Xylenes, Total		ND		9.7
Gasoline Range Organics (GRO)-C6-C12		ND		240
TBA		ND		9.7
Ethanol		ND		480
DIPE		ND		4.8
TAME		ND		4.8
Ethyl t-butyl ether		ND		4.8

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	84		52 - 140
1,2-Dichloroethane-d4 (Surr)	98		60 - 140
Toluene-d8 (Surr)	95		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-5-5**

Lab Sample ID: 720-31250-11 Date Sampled: 10/18/2010 1430
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80225		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80246		Lab File ID:	10201009.D
Dilution:	1.0			Initial Weight/Volume:	5.16 g
Date Analyzed:	10/20/2010 1256			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.8
Benzene		ND		4.8
EDB		ND		4.8
1,2-DCA		ND		4.8
Ethylbenzene		ND		4.8
Toluene		ND		4.8
Xylenes, Total		ND		9.7
Gasoline Range Organics (GRO)-C6-C12		ND		240
TBA		460		9.7
Ethanol		ND		480
DIPE		ND		4.8
TAME		ND		4.8
Ethyl t-butyl ether		ND		4.8

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	95		52 - 140
1,2-Dichloroethane-d4 (Surr)	98		60 - 140
Toluene-d8 (Surr)	105		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-5-10**

Lab Sample ID: 720-31250-12 Date Sampled: 10/18/2010 1435
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80225		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80246		Lab File ID:	10201020.D
Dilution:	1.0			Initial Weight/Volume:	5.17 g
Date Analyzed:	10/20/2010 1854			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		140		4.8
EDB		ND		4.8
1,2-DCA		ND		4.8
TBA		230		9.7
Ethanol		ND		480
DIPE		ND		4.8
TAME		34		4.8
Ethyl t-butyl ether		ND		4.8

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	131		52 - 140
1,2-Dichloroethane-d4 (Surr)	99		60 - 140
Toluene-d8 (Surr)	109		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-5-10**

Lab Sample ID: 720-31250-12 Date Sampled: 10/18/2010 1435
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80367	Instrument ID: SAT 3900A
Preparation:	5030B	Prep Batch: 720-80447	Lab File ID: 31250-A-12
Dilution:	100		Initial Weight/Volume: 10.03 g
Date Analyzed:	10/21/2010 2059		Final Weight/Volume: 10 mL
Date Prepared:	10/21/2010 1700		

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Benzene		ND		500
Ethylbenzene		4700		500
Toluene		ND		500
Xylenes, Total		10000		1000
Gasoline Range Organics (GRO)-C6-C12		350000		25000

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	130		66 - 148
1,2-Dichloroethane-d4 (Surr)	97		62 - 137
Toluene-d8 (Surr)	103		65 - 141

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-5-15**

Lab Sample ID: 720-31250-13 Date Sampled: 10/18/2010 1440
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201032.D
Dilution:	1.0			Initial Weight/Volume:	5.40 g
Date Analyzed:	10/21/2010 0112			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.6
Benzene		170		4.6
EDB		ND		4.6
1,2-DCA		ND		4.6
Ethylbenzene		100		4.6
Toluene		ND		4.6
Xylenes, Total		80		9.3
Gasoline Range Organics (GRO)-C6-C12		1700		230
TBA		59		9.3
Ethanol		ND		460
DIPE		ND		4.6
TAME		ND		4.6
Ethyl t-butyl ether		ND		4.6

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	108		52 - 140
1,2-Dichloroethane-d4 (Surr)	99		60 - 140
Toluene-d8 (Surr)	107		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-5-20**

Lab Sample ID: 720-31250-14 Date Sampled: 10/18/2010 1445
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201030.D
Dilution:	1.0			Initial Weight/Volume:	5.07 g
Date Analyzed:	10/21/2010 0007			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.9
Benzene		ND		4.9
EDB		ND		4.9
1,2-DCA		ND		4.9
Ethylbenzene		ND		4.9
Toluene		ND		4.9
Xylenes, Total		ND		9.9
Gasoline Range Organics (GRO)-C6-C12		ND		250
TBA		ND		9.9
Ethanol		ND		490
DIPE		ND		4.9
TAME		ND		4.9
Ethyl t-butyl ether		ND		4.9

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	96		52 - 140
1,2-Dichloroethane-d4 (Surr)	97		60 - 140
Toluene-d8 (Surr)	104		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Client Sample ID: **SB-5-25**

Lab Sample ID: 720-31250-15 Date Sampled: 10/18/2010 1450
Client Matrix: Solid Date Received: 10/18/2010 1727

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201031.D
Dilution:	1.0			Initial Weight/Volume:	5.42 g
Date Analyzed:	10/21/2010 0040			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.6
Benzene		ND		4.6
EDB		ND		4.6
1,2-DCA		ND		4.6
Ethylbenzene		ND		4.6
Toluene		ND		4.6
Xylenes, Total		ND		9.2
Gasoline Range Organics (GRO)-C6-C12		ND		230
TBA		ND		9.2
Ethanol		ND		460
DIPE		ND		4.6
TAME		ND		4.6
Ethyl t-butyl ether		ND		4.6

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	90		52 - 140
1,2-Dichloroethane-d4 (Surr)	99		60 - 140
Toluene-d8 (Surr)	102		58 - 140

DATA REPORTING QUALIFIERS

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Lab Section	Qualifier	Description
GC/MS VOA		
	X	Surrogate is outside control limits

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-80225					
LCS 720-80246/2-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-80246
LCS 720-80246/4-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-80246
LCSD 720-80246/3-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-80246
LCSD 720-80246/5-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-80246
MB 720-80246/1-A	Method Blank	T	Solid	8260B/CA_LUFT	720-80246
720-31250-1	SB-6-5	T	Solid	8260B/CA_LUFT	720-80246
720-31250-3	SB-6-15	T	Solid	8260B/CA_LUFT	720-80246
720-31250-4	SB-6-20	T	Solid	8260B/CA_LUFT	720-80246
720-31250-5	SB-6-25	T	Solid	8260B/CA_LUFT	720-80246
720-31250-6	SB-3-5	T	Solid	8260B/CA_LUFT	720-80246
720-31250-7	SB-3-10	T	Solid	8260B/CA_LUFT	720-80246
720-31250-8	SB-3-15	T	Solid	8260B/CA_LUFT	720-80246
720-31250-9	SB-3-20	T	Solid	8260B/CA_LUFT	720-80246
720-31250-11	SB-5-5	T	Solid	8260B/CA_LUFT	720-80246
720-31250-11MS	Matrix Spike	T	Solid	8260B/CA_LUFT	720-80246
720-31250-11MSD	Matrix Spike Duplicate	T	Solid	8260B/CA_LUFT	720-80246
720-31250-12	SB-5-10	T	Solid	8260B/CA_LUFT	720-80246
Prep Batch: 720-80246					
LCS 720-80246/2-A	Lab Control Sample	T	Solid	5030B	
LCS 720-80246/4-A	Lab Control Sample	T	Solid	5030B	
LCSD 720-80246/3-A	Lab Control Sample Duplicate	T	Solid	5030B	
LCSD 720-80246/5-A	Lab Control Sample Duplicate	T	Solid	5030B	
MB 720-80246/1-A	Method Blank	T	Solid	5030B	
720-31250-1	SB-6-5	T	Solid	5030B	
720-31250-3	SB-6-15	T	Solid	5030B	
720-31250-4	SB-6-20	T	Solid	5030B	
720-31250-5	SB-6-25	T	Solid	5030B	
720-31250-6	SB-3-5	T	Solid	5030B	
720-31250-7	SB-3-10	T	Solid	5030B	
720-31250-8	SB-3-15	T	Solid	5030B	
720-31250-9	SB-3-20	T	Solid	5030B	
720-31250-11	SB-5-5	T	Solid	5030B	
720-31250-11MS	Matrix Spike	T	Solid	5030B	
720-31250-11MSD	Matrix Spike Duplicate	T	Solid	5030B	
720-31250-12	SB-5-10	T	Solid	5030B	

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-80291					
LCS 720-80352/2-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-80352
LCS 720-80352/4-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-80352
LCSD 720-80352/3-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-80352
LCSD 720-80352/5-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-80352
MB 720-80352/1-A	Method Blank	T	Solid	8260B/CA_LUFT	720-80352
720-31250-2	SB-6-10	T	Solid	8260B/CA_LUFT	720-80352
720-31250-13	SB-5-15	T	Solid	8260B/CA_LUFT	720-80352
720-31250-14	SB-5-20	T	Solid	8260B/CA_LUFT	720-80352
720-31250-15	SB-5-25	T	Solid	8260B/CA_LUFT	720-80352
Prep Batch: 720-80352					
LCS 720-80352/2-A	Lab Control Sample	T	Solid	5030B	
LCS 720-80352/4-A	Lab Control Sample	T	Solid	5030B	
LCSD 720-80352/3-A	Lab Control Sample Duplicate	T	Solid	5030B	
LCSD 720-80352/5-A	Lab Control Sample Duplicate	T	Solid	5030B	
MB 720-80352/1-A	Method Blank	T	Solid	5030B	
720-31250-2	SB-6-10	T	Solid	5030B	
720-31250-13	SB-5-15	T	Solid	5030B	
720-31250-14	SB-5-20	T	Solid	5030B	
720-31250-15	SB-5-25	T	Solid	5030B	
Analysis Batch:720-80367					
LCS 720-80447/4-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-80447
LCSD 720-80447/5-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-80447
720-31250-12	SB-5-10	T	Solid	8260B/CA_LUFT	720-80447
Analysis Batch:720-80417					
720-31250-2	SB-6-10	T	Solid	8260B/CA_LUFT	720-80447
Prep Batch: 720-80447					
LCS 720-80447/4-A	Lab Control Sample	T	Solid	5030B	
LCSD 720-80447/5-A	Lab Control Sample Duplicate	T	Solid	5030B	
720-31250-2	SB-6-10	T	Solid	5030B	
720-31250-12	SB-5-10	T	Solid	5030B	

Report Basis

T = Total

Client: ARCADIS U.S., Inc.

Job Number: 720-31250-1

Method Blank - Batch: 720-80246

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID: MB 720-80246/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/20/2010 1014
Date Prepared: 10/20/2010 0900

Analysis Batch: 720-80225
Prep Batch: 720-80246
Units: ug/Kg

Instrument ID: HP9
Lab File ID: 10201004.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		5.0
Benzene	ND		5.0
EDB	ND		5.0
1,2-DCA	ND		5.0
Ethylbenzene	ND		5.0
Toluene	ND		5.0
m-Xylene & p-Xylene	ND		5.0
o-Xylene	ND		5.0
Xylenes, Total	ND		10
Gasoline Range Organics (GRO)-C6-C12	ND		250
TBA	ND		10
Ethanol	ND		500
DIPE	ND		5.0
TAME	ND		5.0
Ethyl t-butyl ether	ND		5.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	98	52 - 140
1,2-Dichloroethane-d4 (Surr)	103	60 - 140
Toluene-d8 (Surr)	102	58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-80246

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-80246/2-A	Analysis Batch:	720-80225	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80246	Lab File ID:	10201005.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 1046			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

LCSD Lab Sample ID:	LCSD 720-80246/3-A	Analysis Batch:	720-80225	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80246	Lab File ID:	10201006.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 1119			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	111	112	71 - 144	1	20		
Benzene	104	103	82 - 124	0	20		
EDB	110	109	79 - 140	1	20		
1,2-DCA	99	98	74 - 125	0	20		
Ethylbenzene	104	104	80 - 137	1	20		
Toluene	99	99	83 - 128	1	20		
m-Xylene & p-Xylene	107	107	79 - 146	0	20		
o-Xylene	102	102	84 - 140	0	20		
TBA	96	92	76 - 119	3	20		
Ethanol	83	79	49 - 162	5	20		
DIPE	107	106	83 - 131	1	20		
TAME	104	105	74 - 140	0	20		
Ethyl t-butyl ether	101	102	76 - 129	1	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	105	104	52 - 140
1,2-Dichloroethane-d4 (Surr)	100	100	60 - 140
Toluene-d8 (Surr)	105	106	58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-80246

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-80246/4-A	Analysis Batch:	720-80225	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80246	Lab File ID:	10201007.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 1151			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

LCSD Lab Sample ID:	LCSD 720-80246/5-A	Analysis Batch:	720-80225	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80246	Lab File ID:	10201008.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 1224			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C6-C12	78	75	64 - 107	3	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	104	103	52 - 140
1,2-Dichloroethane-d4 (Surr)	100	102	60 - 140
Toluene-d8 (Surr)	108	108	58 - 140

Client: ARCADIS U.S., Inc.

Job Number: 720-31250-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-80246

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-31250-11	Analysis Batch:	720-80225	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80246	Lab File ID:	10201010.D
Dilution:	1.0			Initial Weight/Volume:	5.31 g
Date Analyzed:	10/20/2010 1329			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

MSD Lab Sample ID:	720-31250-11	Analysis Batch:	720-80225	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80246	Lab File ID:	10201011.D
Dilution:	1.0			Initial Weight/Volume:	5.28 g
Date Analyzed:	10/20/2010 1401			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 0900				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	111	107	69 - 130	3	20		
Benzene	106	107	70 - 130	2	20		
EDB	107	105	66 - 135	2	20		
1,2-DCA	99	99	70 - 130	1	20		
Ethylbenzene	107	109	65 - 130	3	20		
Toluene	101	103	70 - 130	3	20		
m-Xylene & p-Xylene	109	113	70 - 130	4	20		
o-Xylene	103	106	68 - 130	4	20		
TBA	93	94	70 - 130	1	20		
Ethanol	83	87	70 - 130	6	20		
DIPE	107	106	70 - 130	0	20		
TAME	102	101	70 - 130	0	20		
Ethyl t-butyl ether	101	100	70 - 130	0	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	104	103	52 - 140
1,2-Dichloroethane-d4 (Surr)	99	95	60 - 140
Toluene-d8 (Surr)	106	105	58 - 140

Client: ARCADIS U.S., Inc.

Job Number: 720-31250-1

Method Blank - Batch: 720-80352

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID:	MB 720-80352/1-A	Analysis Batch:	720-80291	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80352	Lab File ID:	10201029.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 2334			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		5.0
Benzene	ND		5.0
EDB	ND		5.0
1,2-DCA	ND		5.0
Ethylbenzene	ND		5.0
Toluene	ND		5.0
m-Xylene & p-Xylene	ND		5.0
o-Xylene	ND		5.0
Xylenes, Total	ND		10
Gasoline Range Organics (GRO)-C6-C12	ND		250
TBA	ND		10
Ethanol	ND		500
DIPE	ND		5.0
TAME	ND		5.0
Ethyl t-butyl ether	ND		5.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	98	52 - 140
1,2-Dichloroethane-d4 (Surr)	102	60 - 140
Toluene-d8 (Surr)	103	58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-80352

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-80352/2-A	Analysis Batch:	720-80291	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80352	Lab File ID:	10201025.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 2125			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

LCSD Lab Sample ID:	LCSD 720-80352/3-A	Analysis Batch:	720-80291	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80352	Lab File ID:	10201026.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 2157			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

	% Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	123	119	71 - 144	3	20		
Benzene	110	109	82 - 124	1	20		
EDB	116	114	79 - 140	2	20		
1,2-DCA	105	103	74 - 125	1	20		
Ethylbenzene	108	108	80 - 137	0	20		
Toluene	104	104	83 - 128	0	20		
m-Xylene & p-Xylene	111	111	79 - 146	0	20		
o-Xylene	106	106	84 - 140	1	20		
TBA	94	95	76 - 119	1	20		
Ethanol	74	75	49 - 162	2	20		
DIPE	111	109	83 - 131	2	20		
TAME	115	112	74 - 140	3	20		
Ethyl t-butyl ether	111	108	76 - 129	3	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	106	104	52 - 140
1,2-Dichloroethane-d4 (Surr)	101	99	60 - 140
Toluene-d8 (Surr)	107	106	58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-80352

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-80352/4-A	Analysis Batch:	720-80291	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80352	Lab File ID:	10201027.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 2230			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

LCSD Lab Sample ID:	LCSD 720-80352/5-A	Analysis Batch:	720-80291	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80352	Lab File ID:	10201028.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 2302			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C6-C12	82	83	64 - 107	2	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	104	106	52 - 140
1,2-Dichloroethane-d4 (Surr)	104	100	60 - 140
Toluene-d8 (Surr)	108	109	58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31250-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-80447

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-80447/4-A	Analysis Batch:	720-80367	Instrument ID:	SAT 3900A
Client Matrix:	Solid	Prep Batch:	720-80447	Lab File ID:	LCS G 10-22-2010 12;04;33
Dilution:	100	Units:	ug/Kg	Initial Weight/Volume:	10 g
Date Analyzed:	10/22/2010 0004			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

LCSD Lab Sample ID:	LCSD 720-80447/5-A	Analysis Batch:	720-80367	Instrument ID:	SAT 3900A
Client Matrix:	Solid	Prep Batch:	720-80447	Lab File ID:	LCSD G 10-22-2010 12;29;53
Dilution:	100	Units:	ug/Kg	Initial Weight/Volume:	10 g
Date Analyzed:	10/22/2010 0029			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C6-C12	85	74	70 - 130	13	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	96	93	66 - 148
1,2-Dichloroethane-d4 (Surr)	99	91	62 - 137
Toluene-d8 (Surr)	99	97	65 - 141

Sharma, Dimple

From: Woodley, Tobin [Tobin.Woodley@arcadis-us.com]
Sent: Tuesday, October 19, 2010 9:25 AM
To: Sharma, Dimple
Subject: BP04931 COC error

Dimple,

Sample "SB-3-25" listed on the 10/18/10 chain of custody submitted for our project BP04931 was not collected in the field. Please exclude "SB-3-25" from your records.

Thank you,

Tobin Woodley | Environmental Scientist 1 | tobin.woodley@arcadis-us.com
ARCADIS U.S., Inc. | 2033 North Main Street, Suite 304 | Walnut Creek, CA, 94596
T. 925.296.7811 | M. 530.320.4248 | F. 925.274.1103
www.arcadis-us.com
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Reference #: 127602

Date 10/18/10 Page 1 of 2

720-31250

Report To

Attn: Ben McKenna
Company: Arcadis
Address: 2033 N. Main St. Ste 94596
Phone: 925.274.1100 Email: ben.mckenna@arcadis-us.com
Bill To:
Sampled By: Rob Moniz
Attn:
Phone: 510.409.3831

Analysis Request

Sample ID	Date	Time	Matrix	Preserv.	TPH EPA - ☐ 8260B ☐ 8015B ☐ Gas w/ ☐ BTEX ☐ MTBE	TEPH EPA 8015M* ☐ Silica Gel ☐ Diesel ☐ Motor Oil ☐ Other	EPA 8260B: ☐ Gas ☐ BTEX ☐ 5 Oxygenates ☐ DCA, EDB ☐ Ethanol	(HVOCs) EPA 8021 by 8260B	Volatile Organics GC/MS (VOCs) ☐ EPA 8260B ☐ 624	Semivolatiles GC/MS ☐ EPA 8270 ☐ 625	Oil and Grease ☐ Petroleum (EPA 1664) ☐ Total	Pesticides ☐ EPA 8081 ☐ 608 PCBs ☐ EPA 8082 ☐ 608	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other:	Low Level Metals by EPA 200.8/6020 (ICP-MS):	☐ W.E.T (STLC) ☐ TCLP	☐ Hexavalent Chromium ☐ pH (24h hold time for H_2O)	☐ Spec. Cond. ☐ Alkalinity ☐ TSS ☐ TDS	Anions: ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4	GRO, BTEX, 8 Oxygenates by 8260B				Number of Containers
SB-6-5	10/18	1030	S																			X				
SB-6-10		1035																				X				
SB-6-15		1040																				X				
SB-6-20		1045																				X				
SB-6-25		1050																				X				
SB-3-5		1300																				X				
SB-3-10		1305																				X				
SB-3-15		1310																				X				
SB-3-20		1315																				X				
SB-3-25		1320																				X				

RUSH

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Project Info

Project Name: BP0493I
Project#: GP09BPNA.CH10.C0000
PO#:
Credit Card#:

Sample Receipt

of Containers:
Head Space:
Temp: 5.2°
Conforms to record:

TAT: 5 Day | 3 Day | 2 Day | 1 Day — Other: STD

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD ☐ State Tank Fund EDF
Special Instructions / Comments: ☐ Global ID _____

See Terms and Conditions on reverse
*TestAmerica SF reports 8015M from C_8-C_{24} (industry norm). Default for 8015B is C_{10}-C_{28}

1) Relinquished by:	2) Relinquished by:	3) Relinquished by:
Signature: [signature] Time: 1651	Signature: [signature] Time: 1727	Signature: Time:
Printed Name: Rob Moniz Date: 10/18/10	Printed Name: VASQUEZ Date: 10/18/10	Printed Name: Date:
Company: Arcadis	Company: Gold Bullet	Company:

1) Received by:	2) Received by:	3) Received by:
Signature: [signature] Time: 1651	Signature: [signature] Time: 1727	Signature: Time:
Printed Name: VASQUEZ Date: 10/18/10	Printed Name: Mullen Date: 10-18-10	Printed Name: Date:
Company: Gold Bullet	Company: TestAmerica	Company:

Rev09/09

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TESTAMERICA San Francisco Chain of Custody
1220 Quarry Lane ● Pleasanton CA 94566-4756
Phone: (925) 484-1919 ● Fax: (925) 600-3002

720-31250

Reference #: 127602

Date 10/18/10 Page 2 of 2

Report To

Attn:
Company: Arcadis
Address:
Phone: Email:
Bill To:
Sampled By: Rob Moniz
Attn:
Phone:

Analysis Request

Columns: TPH EPA - ☐ 8260B ☐ Gas w/ ☐ BTEX ☐ MTBE | TEPH EPA 8015M* ☐ Silica Gel ☐ Diesel ☐ Motor Oil ☐ Other | EPA 8260B: ☐ Gas ☐ BTEX ☐ 5 Oxygenates ☐ DCA, EDB ☐ Ethanol | (HVOCs) EPA 8021 by 8260B | Volatile Organics GC/MS (VOCs) ☐ EPA 8260B ☐ 624 | Semivolatiles GC/MS ☐ EPA 8270 ☐ 625 | Oil and Grease ☐ Petroleum (EPA 1664) ☐ Total | Pesticides ☐ EPA 8081 ☐ 608 PCBs ☐ EPA 8082 ☐ 608 | PNAs by ☐ 8270 ☐ 8310 | CAM17 Metals (EPA 6010/7470/7471) | Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other: | Low Level Metals by EPA 200.8/6020 (ICP-MS): | W.E.T (STLC) ☐ TCLP ☐ | ☐ Hexavalent Chromium ☐ pH (24h hold time for H_2O) | ☐ Spec. Cond. ☐ Alkalinity ☐ TSS ☐ TDS | Anions: ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4 | GRO, BTEX, 8 oxygenates by 8260B | | | | Number of Containers

Sample ID	Date	Time	Matrix	Preserv.	GRO, BTEX, 8 oxygenates by 8260B	Number of Containers
SB-5-5	10/18	1430	S		X	
SB-5-10	↓	1435	↓		X	
SB-5-15	↓	1440	↓		X	
SB-5-20	↓	1445	↓		X	
SB-5-25	↓	1450	↓		X	

RUSH

Project Info / **Sample Receipt**

Project Name: BP04931
# of Containers:
Project#: GP09BPNA.C110.C0000
~~Head Space:~~
PO#:
Temp: 5.2°
Credit Card#:
Conforms to record:

TAT: 5 Day | (3 Day) circled | 2 Day | 1 Day | Other: STD

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD ☐ State Tank Fund EDF
Special Instructions / Comments: ☐ Global ID

	1)	2)	3)
Relinquished by: Signature	[signature]	[signature]	
Time	1651	1727	
Printed Name	Rob Moniz	Vasquez	
Date	10/18/10	10/18/10	
Company	Arcadis	Gold Bullet	
Received by: Signature	[signature]	John Mullen	
Time	1651	1727	
Printed Name	Vasquez	Mullen	
Date	10/18/10	10-18-10	
Company	Gold Bullet	TestAmerica	

See Terms and Conditions on reverse
*TestAmerica SF reports 8015M from C_6-C_{24} (industry norm). Default for 8015B is C_{10}-C_{28}

Rev09/09

Login Sample Receipt Check List

Client: ARCADIS U.S., Inc.

Job Number: 720-31250-1

Login Number: 31250

List Source: TestAmerica San Francisco

Creator: Mullen, Joan

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

ANALYTICAL REPORT

Job Number: 720-31280-1

Job Description: BP #4931, Oakland

For:
ARCADIS U.S., Inc.
155 Montgomery Street
Suite 1500
San Francisco, CA 94104

Attention: Hollis Phillips

Approved for release.
Dimple Sharma
Project Manager I
10/25/2010 2:14 PM

Dimple Sharma
Project Manager I
dimple.sharma@testamericainc.com
10/25/2010

cc: Mr. Jason Duda
Mr. Ben McKenna

CA ELAP Certification # 2496
The Chain(s) of Custody are included and are an integral part of this report.

A trip blank is required to be provided for volatile analyses. If trip blank results are not included in the report, either the trip blank was not submitted or requested to be analyzed.

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

GC VOA
No analytical or quality issues were noted.

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-31280-2	**SB-1A-10**				
Benzene		35	25	ug/Kg	8260B/CA_LUFTMS
Xylenes, Total		260	50	ug/Kg	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C6-C12		33000	25000	ug/Kg	8260B/CA_LUFTMS
720-31280-3	**SB-1A-15**				
Methyl tert-butyl ether		7.6	4.7	ug/Kg	8260B/CA_LUFTMS
Benzene		180	21	ug/Kg	8260B/CA_LUFTMS
1,2-DCA		4.9	4.7	ug/Kg	8260B/CA_LUFTMS
Ethylbenzene		84	4.7	ug/Kg	8260B/CA_LUFTMS
Toluene		100	4.7	ug/Kg	8260B/CA_LUFTMS
Xylenes, Total		270	42	ug/Kg	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C6-C12		1200	1100	ug/Kg	8260B/CA_LUFTMS
TBA		220	9.4	ug/Kg	8260B/CA_LUFTMS
720-31280-4	**SB-1A-20**				
Ethylbenzene		9800	4900	ug/Kg	8260B/CA_LUFTMS
Toluene		5700	4900	ug/Kg	8260B/CA_LUFTMS
Xylenes, Total		63000	9900	ug/Kg	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C6-C12		770000	250000	ug/Kg	8260B/CA_LUFTMS
720-31280-5	**SB-1A-25**				
Benzene		5200	4800	ug/Kg	8260B/CA_LUFTMS
Ethylbenzene		17000	4800	ug/Kg	8260B/CA_LUFTMS
Toluene		34000	4800	ug/Kg	8260B/CA_LUFTMS
Xylenes, Total		110000	9600	ug/Kg	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C6-C12		1400000	240000	ug/Kg	8260B/CA_LUFTMS
720-31280-6	**SB-2-5**				
TBA		24	9.3	ug/Kg	8260B/CA_LUFTMS
720-31280-7	**SB-2-10**				
Benzene		44	25	ug/Kg	8260B/CA_LUFTMS
Ethylbenzene		800	25	ug/Kg	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C6-C12		29000	24000	ug/Kg	8260B/CA_LUFTMS

EXECUTIVE SUMMARY - Detections

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Lab Sample ID / Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method
720-31280-8	**SB-2-15**				
Benzene		58	25	ug/Kg	8260B/CA_LUFTMS
Ethylbenzene		940	25	ug/Kg	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C6-C12		110000	24000	ug/Kg	8260B/CA_LUFTMS
720-31280-9	**SB-2-19**				
Ethylbenzene		43	4.9	ug/Kg	8260B/CA_LUFTMS
TBA		28	9.7	ug/Kg	8260B/CA_LUFTMS
720-31280-10	**SB-2-25**				
Ethylbenzene		4.7	4.6	ug/Kg	8260B/CA_LUFTMS
Xylenes, Total		21	9.3	ug/Kg	8260B/CA_LUFTMS
720-31280-11	**SB-1A-30**				
Benzene		6.1	4.6	ug/Kg	8260B/CA_LUFTMS
Ethylbenzene		12	4.6	ug/Kg	8260B/CA_LUFTMS
Toluene		27	4.6	ug/Kg	8260B/CA_LUFTMS
Xylenes, Total		75	9.1	ug/Kg	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C6-C12		380	230	ug/Kg	8260B/CA_LUFTMS
720-31280-12	**SB-1A-35**				
Benzene		190	20	ug/Kg	8260B/CA_LUFTMS
Ethylbenzene		210	20	ug/Kg	8260B/CA_LUFTMS
Toluene		650	20	ug/Kg	8260B/CA_LUFTMS
Xylenes, Total		26000	990	ug/Kg	8260B/CA_LUFTMS
Gasoline Range Organics (GRO)-C6-C12		6200	1000	ug/Kg	8260B/CA_LUFTMS

METHOD SUMMARY

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Description	Lab Location	Method	Preparation Method
Matrix Solid			
8260B / CA LUFT MS	TAL SF	SW846 8260B/CA_LUFTMS	
Purge and Trap	TAL SF		SW846 5030B

Lab References:

TAL SF = TestAmerica San Francisco

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-31280-1	SB-1A-5	Solid	10/19/2010 1100	10/19/2010 1829
720-31280-2	SB-1A-10	Solid	10/19/2010 1105	10/19/2010 1829
720-31280-3	SB-1A-15	Solid	10/19/2010 1110	10/19/2010 1829
720-31280-4	SB-1A-20	Solid	10/19/2010 1115	10/19/2010 1829
720-31280-5	SB-1A-25	Solid	10/19/2010 1120	10/19/2010 1829
720-31280-6	SB-2-5	Solid	10/19/2010 1505	10/19/2010 1829
720-31280-7	SB-2-10	Solid	10/19/2010 1510	10/19/2010 1829
720-31280-8	SB-2-15	Solid	10/19/2010 1515	10/19/2010 1829
720-31280-9	SB-2-19	Solid	10/19/2010 1520	10/19/2010 1829
720-31280-10	SB-2-25	Solid	10/19/2010 1525	10/19/2010 1829
720-31280-11	SB-1A-30	Solid	10/19/2010 1125	10/19/2010 1829
720-31280-12	SB-1A-35	Solid	10/19/2010 1130	10/19/2010 1829

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-5**

Lab Sample ID: 720-31280-1 Date Sampled: 10/19/2010 1100
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201036.D
Dilution:	1.0			Initial Weight/Volume:	5.13 g
Date Analyzed:	10/21/2010 0323			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.9
Benzene		ND		4.9
EDB		ND		4.9
1,2-DCA		ND		4.9
Ethylbenzene		ND		4.9
Toluene		ND		4.9
Xylenes, Total		ND		9.7
Gasoline Range Organics (GRO)-C6-C12		ND		240
TBA		ND		9.7
Ethanol		ND		490
DIPE		ND		4.9
TAME		ND		4.9
Ethyl t-butyl ether		ND		4.9

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	95		52 - 140
1,2-Dichloroethane-d4 (Surr)	98		60 - 140
Toluene-d8 (Surr)	102		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-10**

Lab Sample ID: 720-31280-2 Date Sampled: 10/19/2010 1105
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201041.D
Dilution:	1.0			Initial Weight/Volume:	1.00 g
Date Analyzed:	10/21/2010 0605			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		25
Benzene		35		25
EDB		ND		25
1,2-DCA		ND		25
Toluene		ND		25
Xylenes, Total		260		50
TBA		ND		50
Ethanol		ND		2500
DIPE		ND		25
TAME		ND		25
Ethyl t-butyl ether		ND		25

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	124		52 - 140
1,2-Dichloroethane-d4 (Surr)	100		60 - 140
Toluene-d8 (Surr)	109		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-10**

Lab Sample ID: 720-31280-2 Date Sampled: 10/19/2010 1105
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80367		Instrument ID:	SAT 3900A
Preparation:	5030B	Prep Batch: 720-80447		Lab File ID:	31280-A-2
Dilution:	100			Initial Weight/Volume:	10.00 g
Date Analyzed:	10/21/2010 2125			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Ethylbenzene		ND		500
Gasoline Range Organics (GRO)-C6-C12		33000		25000

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	101		66 - 148
1,2-Dichloroethane-d4 (Surr)	94		62 - 137
Toluene-d8 (Surr)	91		65 - 141

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-15**

Lab Sample ID: 720-31280-3 Date Sampled: 10/19/2010 1110
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201033.D
Dilution:	1.0			Initial Weight/Volume:	5.30 g
Date Analyzed:	10/21/2010 0145			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		7.6		4.7
EDB		ND		4.7
1,2-DCA		4.9		4.7
Ethylbenzene		84		4.7
Toluene		100		4.7
TBA		220		9.4
Ethanol		ND		470
DIPE		ND		4.7
TAME		ND		4.7
Ethyl t-butyl ether		ND		4.7

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	107		52 - 140
1,2-Dichloroethane-d4 (Surr)	102		60 - 140
Toluene-d8 (Surr)	107		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-15**

Lab Sample ID: 720-31280-3 Date Sampled: 10/19/2010 1110
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80312		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80432		Lab File ID:	10211012.D
Dilution:	1.0			Initial Weight/Volume:	1.19 g
Date Analyzed:	10/21/2010 1457			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 0800				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Benzene		180		21
Xylenes, Total		270		42
Gasoline Range Organics (GRO)-C6-C12		1200		1100

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	105		52 - 140
1,2-Dichloroethane-d4 (Surr)	97		60 - 140
Toluene-d8 (Surr)	107		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-20**

Lab Sample ID: 720-31280-4 Date Sampled: 10/19/2010 1115
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291	Instrument ID: HP9
Preparation:	5030B	Prep Batch: 720-80352	Lab File ID: 10201042.D
Dilution:	1.0		Initial Weight/Volume: 1.00 g
Date Analyzed:	10/21/2010 0637		Final Weight/Volume: 10 mL
Date Prepared:	10/20/2010 2000		

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		25
EDB		ND		25
1,2-DCA		ND		25
TBA		ND		50
Ethanol		ND		2500
DIPE		ND		25
TAME		ND		25
Ethyl t-butyl ether		ND		25

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	139		52 - 140
1,2-Dichloroethane-d4 (Surr)	101		60 - 140
Toluene-d8 (Surr)	105		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-20**

Lab Sample ID: 720-31280-4 Date Sampled: 10/19/2010 1115
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80417		Instrument ID:	SAT 3900A
Preparation:	5030B	Prep Batch: 720-80447		Lab File ID:	31280A4 X1000
Dilution:	1000			Initial Weight/Volume:	10.14 g
Date Analyzed:	10/22/2010 1355			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Benzene		ND		4900
Ethylbenzene		9800		4900
Toluene		5700		4900
Xylenes, Total		63000		9900
Gasoline Range Organics (GRO)-C6-C12		770000		250000

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	99		66 - 148
1,2-Dichloroethane-d4 (Surr)	89		62 - 137
Toluene-d8 (Surr)	91		65 - 141

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-25**

Lab Sample ID: 720-31280-5 Date Sampled: 10/19/2010 1120
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201043.D
Dilution:	1.0			Initial Weight/Volume:	1.00 g
Date Analyzed:	10/21/2010 0710			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		25
EDB		ND		25
1,2-DCA		ND		25
TBA		ND		50
Ethanol		ND		2500
DIPE		ND		25
TAME		ND		25
Ethyl t-butyl ether		ND		25

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	135		52 - 140
1,2-Dichloroethane-d4 (Surr)	101		60 - 140
Toluene-d8 (Surr)	105		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-25**

Lab Sample ID: 720-31280-5 Date Sampled: 10/19/2010 1120
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80417		Instrument ID:	SAT 3900A
Preparation:	5030B	Prep Batch: 720-80447		Lab File ID:	31280A5 X1000
Dilution:	1000			Initial Weight/Volume:	10.37 g
Date Analyzed:	10/22/2010 1420			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Benzene		5200		4800
Ethylbenzene		17000		4800
Toluene		34000		4800
Xylenes, Total		110000		9600
Gasoline Range Organics (GRO)-C6-C12		1400000		240000

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	97		66 - 148
1,2-Dichloroethane-d4 (Surr)	96		62 - 137
Toluene-d8 (Surr)	98		65 - 141

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-2-5**

Lab Sample ID: 720-31280-6 Date Sampled: 10/19/2010 1505
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201034.D
Dilution:	1.0			Initial Weight/Volume:	5.37 g
Date Analyzed:	10/21/2010 0217			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.7
Benzene		ND		4.7
EDB		ND		4.7
1,2-DCA		ND		4.7
Ethylbenzene		ND		4.7
Toluene		ND		4.7
Xylenes, Total		ND		9.3
Gasoline Range Organics (GRO)-C6-C12		ND		230
TBA		24		9.3
Ethanol		ND		470
DIPE		ND		4.7
TAME		ND		4.7
Ethyl t-butyl ether		ND		4.7

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	103		52 - 140
1,2-Dichloroethane-d4 (Surr)	101		60 - 140
Toluene-d8 (Surr)	106		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-2-10**

Lab Sample ID: 720-31280-7 Date Sampled: 10/19/2010 1510
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201040.D
Dilution:	1.0			Initial Weight/Volume:	1.00 g
Date Analyzed:	10/21/2010 0532			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		25
Benzene		44		25
EDB		ND		25
1,2-DCA		ND		25
Ethylbenzene		800		25
Toluene		ND		25
TBA		ND		50
Ethanol		ND		2500
DIPE		ND		25
TAME		ND		25
Ethyl t-butyl ether		ND		25

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	117		52 - 140
1,2-Dichloroethane-d4 (Surr)	102		60 - 140
Toluene-d8 (Surr)	109		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-2-10**

Lab Sample ID: 720-31280-7 Date Sampled: 10/19/2010 1510
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80367		Instrument ID:	SAT 3900A
Preparation:	5030B	Prep Batch: 720-80447		Lab File ID:	31280-A-7
Dilution:	100			Initial Weight/Volume:	10.37 g
Date Analyzed:	10/21/2010 2247			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Xylenes, Total		ND		960
Gasoline Range Organics (GRO)-C6-C12		29000		24000

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	101		66 - 148
1,2-Dichloroethane-d4 (Surr)	93		62 - 137
Toluene-d8 (Surr)	93		65 - 141

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-2-15**

Lab Sample ID: 720-31280-8 Date Sampled: 10/19/2010 1515
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201044.D
Dilution:	1.0			Initial Weight/Volume:	1.00 g
Date Analyzed:	10/21/2010 0742			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		25
Benzene		58		25
EDB		ND		25
1,2-DCA		ND		25
Ethylbenzene		940		25
Toluene		ND		25
TBA		ND		50
Ethanol		ND		2500
DIPE		ND		25
TAME		ND		25
Ethyl t-butyl ether		ND		25

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	129		52 - 140
1,2-Dichloroethane-d4 (Surr)	100		60 - 140
Toluene-d8 (Surr)	109		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-2-15**

Lab Sample ID: 720-31280-8 Date Sampled: 10/19/2010 1515
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80367		Instrument ID:	SAT 3900A
Preparation:	5030B	Prep Batch: 720-80447		Lab File ID:	31280-A-8
Dilution:	100			Initial Weight/Volume:	10.22 g
Date Analyzed:	10/21/2010 2312			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Xylenes, Total		ND		980
Gasoline Range Organics (GRO)-C6-C12		110000		24000

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	116		66 - 148
1,2-Dichloroethane-d4 (Surr)	99		62 - 137
Toluene-d8 (Surr)	96		65 - 141

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-2-19**

Lab Sample ID: 720-31280-9 Date Sampled: 10/19/2010 1520
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80291		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80352		Lab File ID:	10201035.D
Dilution:	1.0			Initial Weight/Volume:	5.14 g
Date Analyzed:	10/21/2010 0250			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.9
Benzene		ND		4.9
EDB		ND		4.9
1,2-DCA		ND		4.9
Ethylbenzene		43		4.9
Toluene		ND		4.9
Xylenes, Total		ND		9.7
Gasoline Range Organics (GRO)-C6-C12		ND		240
TBA		28		9.7
Ethanol		ND		490
DIPE		ND		4.9
TAME		ND		4.9
Ethyl t-butyl ether		ND		4.9

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	99		52 - 140
1,2-Dichloroethane-d4 (Surr)	100		60 - 140
Toluene-d8 (Surr)	104		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-2-25**

Lab Sample ID: 720-31280-10 Date Sampled: 10/19/2010 1525
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80312		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80432		Lab File ID:	10211009.D
Dilution:	1.0			Initial Weight/Volume:	5.39 g
Date Analyzed:	10/21/2010 1319			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 0800				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.6
Benzene		ND		4.6
EDB		ND		4.6
1,2-DCA		ND		4.6
Ethylbenzene		4.7		4.6
Toluene		ND		4.6
Xylenes, Total		21		9.3
Gasoline Range Organics (GRO)-C6-C12		ND		230
TBA		ND		9.3
Ethanol		ND		460
DIPE		ND		4.6
TAME		ND		4.6
Ethyl t-butyl ether		ND		4.6

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	104		52 - 140
1,2-Dichloroethane-d4 (Surr)	99		60 - 140
Toluene-d8 (Surr)	107		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-30**

Lab Sample ID: 720-31280-11 Date Sampled: 10/19/2010 1125
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80312		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80432		Lab File ID:	10211010.D
Dilution:	1.0			Initial Weight/Volume:	5.49 g
Date Analyzed:	10/21/2010 1352			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 0800				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		4.6
Benzene		6.1		4.6
EDB		ND		4.6
1,2-DCA		ND		4.6
Ethylbenzene		12		4.6
Toluene		27		4.6
Xylenes, Total		75		9.1
Gasoline Range Organics (GRO)-C6-C12		380		230
TBA		ND		9.1
Ethanol		ND		460
DIPE		ND		4.6
TAME		ND		4.6
Ethyl t-butyl ether		ND		4.6

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	109		52 - 140
1,2-Dichloroethane-d4 (Surr)	97		60 - 140
Toluene-d8 (Surr)	108		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-35**

Lab Sample ID: 720-31280-12 Date Sampled: 10/19/2010 1130
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80312		Instrument ID:	HP9
Preparation:	5030B	Prep Batch: 720-80432		Lab File ID:	10211015.D
Dilution:	1.0			Initial Weight/Volume:	1.24 g
Date Analyzed:	10/21/2010 1634			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 0800				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Methyl tert-butyl ether		ND		20
Benzene		190		20
EDB		ND		20
1,2-DCA		ND		20
Ethylbenzene		210		20
Toluene		650		20
Gasoline Range Organics (GRO)-C6-C12		6200		1000
TBA		ND		40
Ethanol		ND		2000
DIPE		ND		20
TAME		ND		20
Ethyl t-butyl ether		ND		20

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	109		52 - 140
1,2-Dichloroethane-d4 (Surr)	98		60 - 140
Toluene-d8 (Surr)	109		58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Client Sample ID: **SB-1A-35**

Lab Sample ID: 720-31280-12 Date Sampled: 10/19/2010 1130
Client Matrix: Solid Date Received: 10/19/2010 1829

8260B/CA_LUFTMS 8260B / CA LUFT MS

Method:	8260B/CA_LUFTMS	Analysis Batch: 720-80367		Instrument ID:	SAT 3900A
Preparation:	5030B	Prep Batch: 720-80447		Lab File ID:	31280-A-12
Dilution:	100			Initial Weight/Volume:	10.12 g
Date Analyzed:	10/21/2010 2338			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

Analyte	DryWt Corrected: N	Result (ug/Kg)	Qualifier	RL
Xylenes, Total		26000		990

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene	111		66 - 148
1,2-Dichloroethane-d4 (Surr)	106		62 - 137
Toluene-d8 (Surr)	104		65 - 141

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-80291					
LCS 720-80352/2-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-80352
LCS 720-80352/4-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-80352
LCSD 720-80352/3-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-80352
LCSD 720-80352/5-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-80352
MB 720-80352/1-A	Method Blank	T	Solid	8260B/CA_LUFT	720-80352
720-31280-1	SB-1A-5	T	Solid	8260B/CA_LUFT	720-80352
720-31280-1MS	Matrix Spike	T	Solid	8260B/CA_LUFT	720-80352
720-31280-1MSD	Matrix Spike Duplicate	T	Solid	8260B/CA_LUFT	720-80352
720-31280-2	SB-1A-10	T	Solid	8260B/CA_LUFT	720-80352
720-31280-3	SB-1A-15	T	Solid	8260B/CA_LUFT	720-80352
720-31280-4	SB-1A-20	T	Solid	8260B/CA_LUFT	720-80352
720-31280-5	SB-1A-25	T	Solid	8260B/CA_LUFT	720-80352
720-31280-6	SB-2-5	T	Solid	8260B/CA_LUFT	720-80352
720-31280-7	SB-2-10	T	Solid	8260B/CA_LUFT	720-80352
720-31280-8	SB-2-15	T	Solid	8260B/CA_LUFT	720-80352
720-31280-9	SB-2-19	T	Solid	8260B/CA_LUFT	720-80352
Analysis Batch:720-80312					
LCS 720-80432/2-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-80432
LCS 720-80432/4-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-80432
LCSD 720-80432/3-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-80432
LCSD 720-80432/5-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-80432
MB 720-80432/1-A	Method Blank	T	Solid	8260B/CA_LUFT	720-80432
720-31280-3	SB-1A-15	T	Solid	8260B/CA_LUFT	720-80432
720-31280-10	SB-2-25	T	Solid	8260B/CA_LUFT	720-80432
720-31280-11	SB-1A-30	T	Solid	8260B/CA_LUFT	720-80432
720-31280-12	SB-1A-35	T	Solid	8260B/CA_LUFT	720-80432
Prep Batch: 720-80352					
LCS 720-80352/2-A	Lab Control Sample	T	Solid	5030B	
LCS 720-80352/4-A	Lab Control Sample	T	Solid	5030B	
LCSD 720-80352/3-A	Lab Control Sample Duplicate	T	Solid	5030B	
LCSD 720-80352/5-A	Lab Control Sample Duplicate	T	Solid	5030B	
MB 720-80352/1-A	Method Blank	T	Solid	5030B	
720-31280-1	SB-1A-5	T	Solid	5030B	
720-31280-1MS	Matrix Spike	T	Solid	5030B	
720-31280-1MSD	Matrix Spike Duplicate	T	Solid	5030B	
720-31280-2	SB-1A-10	T	Solid	5030B	
720-31280-3	SB-1A-15	T	Solid	5030B	
720-31280-4	SB-1A-20	T	Solid	5030B	
720-31280-5	SB-1A-25	T	Solid	5030B	
720-31280-6	SB-2-5	T	Solid	5030B	
720-31280-7	SB-2-10	T	Solid	5030B	
720-31280-8	SB-2-15	T	Solid	5030B	
720-31280-9	SB-2-19	T	Solid	5030B	

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-80367					
LCS 720-80447/4-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-80447
LCSD 720-80447/5-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-80447
720-31280-2	SB-1A-10	T	Solid	8260B/CA_LUFT	720-80447
720-31280-7	SB-2-10	T	Solid	8260B/CA_LUFT	720-80447
720-31280-8	SB-2-15	T	Solid	8260B/CA_LUFT	720-80447
720-31280-12	SB-1A-35	T	Solid	8260B/CA_LUFT	720-80447
Analysis Batch:720-80383					
LCS 720-80447/2-A	Lab Control Sample	T	Solid	8260B/CA_LUFT	720-80447
LCSD 720-80447/3-A	Lab Control Sample Duplicate	T	Solid	8260B/CA_LUFT	720-80447
MB 720-80447/1-A	Method Blank	T	Solid	8260B/CA_LUFT	720-80447
Analysis Batch:720-80417					
720-31280-4	SB-1A-20	T	Solid	8260B/CA_LUFT	720-80447
720-31280-5	SB-1A-25	T	Solid	8260B/CA_LUFT	720-80447
Prep Batch: 720-80432					
LCS 720-80432/2-A	Lab Control Sample	T	Solid	5030B	
LCS 720-80432/4-A	Lab Control Sample	T	Solid	5030B	
LCSD 720-80432/3-A	Lab Control Sample Duplicate	T	Solid	5030B	
LCSD 720-80432/5-A	Lab Control Sample Duplicate	T	Solid	5030B	
MB 720-80432/1-A	Method Blank	T	Solid	5030B	
720-31280-3	SB-1A-15	T	Solid	5030B	
720-31280-10	SB-2-25	T	Solid	5030B	
720-31280-11	SB-1A-30	T	Solid	5030B	
720-31280-12	SB-1A-35	T	Solid	5030B	
Prep Batch: 720-80447					
LCS 720-80447/2-A	Lab Control Sample	T	Solid	5030B	
LCS 720-80447/4-A	Lab Control Sample	T	Solid	5030B	
LCSD 720-80447/3-A	Lab Control Sample Duplicate	T	Solid	5030B	
LCSD 720-80447/5-A	Lab Control Sample Duplicate	T	Solid	5030B	
MB 720-80447/1-A	Method Blank	T	Solid	5030B	
720-31280-2	SB-1A-10	T	Solid	5030B	
720-31280-4	SB-1A-20	T	Solid	5030B	
720-31280-5	SB-1A-25	T	Solid	5030B	
720-31280-7	SB-2-10	T	Solid	5030B	
720-31280-8	SB-2-15	T	Solid	5030B	
720-31280-12	SB-1A-35	T	Solid	5030B	

Report Basis
T = Total

Client: ARCADIS U.S., Inc.

Job Number: 720-31280-1

Method Blank - Batch: 720-80352

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID: MB 720-80352/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/20/2010 2334
Date Prepared: 10/20/2010 2000

Analysis Batch: 720-80291
Prep Batch: 720-80352
Units: ug/Kg

Instrument ID: HP9
Lab File ID: 10201029.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		5.0
Benzene	ND		5.0
EDB	ND		5.0
1,2-DCA	ND		5.0
Ethylbenzene	ND		5.0
Toluene	ND		5.0
m-Xylene & p-Xylene	ND		5.0
o-Xylene	ND		5.0
Xylenes, Total	ND		10
Gasoline Range Organics (GRO)-C6-C12	ND		250
TBA	ND		10
Ethanol	ND		500
DIPE	ND		5.0
TAME	ND		5.0
Ethyl t-butyl ether	ND		5.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	98	52 - 140
1,2-Dichloroethane-d4 (Surr)	102	60 - 140
Toluene-d8 (Surr)	103	58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-80352

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-80352/2-A	Analysis Batch:	720-80291	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80352	Lab File ID:	10201025.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 2125			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

LCSD Lab Sample ID:	LCSD 720-80352/3-A	Analysis Batch:	720-80291	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80352	Lab File ID:	10201026.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 2157			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

	% Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	123	119	71 - 144	3	20		
Benzene	110	109	82 - 124	1	20		
EDB	116	114	79 - 140	2	20		
1,2-DCA	105	103	74 - 125	1	20		
Ethylbenzene	108	108	80 - 137	0	20		
Toluene	104	104	83 - 128	0	20		
m-Xylene & p-Xylene	111	111	79 - 146	0	20		
o-Xylene	106	106	84 - 140	1	20		
TBA	94	95	76 - 119	1	20		
Ethanol	74	75	49 - 162	2	20		
DIPE	111	109	83 - 131	2	20		
TAME	115	112	74 - 140	3	20		
Ethyl t-butyl ether	111	108	76 - 129	3	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	106	104	52 - 140
1,2-Dichloroethane-d4 (Surr)	101	99	60 - 140
Toluene-d8 (Surr)	107	106	58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-80352

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-80352/4-A	Analysis Batch:	720-80291	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80352	Lab File ID:	10201027.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 2230			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

LCSD Lab Sample ID:	LCSD 720-80352/5-A	Analysis Batch:	720-80291	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80352	Lab File ID:	10201028.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/20/2010 2302			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C6-C12	82	83	64 - 107	2	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	104	106	52 - 140
1,2-Dichloroethane-d4 (Surr)	104	100	60 - 140
Toluene-d8 (Surr)	108	109	58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 720-80352

Method: 8260B/CA_LUFTMS
Preparation: 5030B

MS Lab Sample ID:	720-31280-1	Analysis Batch:	720-80291	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80352	Lab File ID:	10201037.D
Dilution:	1.0			Initial Weight/Volume:	5.13 g
Date Analyzed:	10/21/2010 0355			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

MSD Lab Sample ID:	720-31280-1	Analysis Batch:	720-80291	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80352	Lab File ID:	10201038.D
Dilution:	1.0			Initial Weight/Volume:	5.13 g
Date Analyzed:	10/21/2010 0427			Final Weight/Volume:	10 mL
Date Prepared:	10/20/2010 2000				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Methyl tert-butyl ether	119	114	69 - 130	4	20		
Benzene	109	106	70 - 130	3	20		
EDB	114	110	66 - 135	4	20		
1,2-DCA	104	100	70 - 130	4	20		
Ethylbenzene	109	106	65 - 130	3	20		
Toluene	105	102	70 - 130	3	20		
m-Xylene & p-Xylene	111	109	70 - 130	2	20		
o-Xylene	107	104	68 - 130	3	20		
TBA	95	96	70 - 130	2	20		
Ethanol	75	79	70 - 130	5	20		
DIPE	111	107	70 - 130	3	20		
TAME	110	107	70 - 130	3	20		
Ethyl t-butyl ether	107	104	70 - 130	3	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
4-Bromofluorobenzene	103	103	52 - 140
1,2-Dichloroethane-d4 (Surr)	99	99	60 - 140
Toluene-d8 (Surr)	105	106	58 - 140

Client: ARCADIS U.S., Inc.

Job Number: 720-31280-1

Method Blank - Batch: 720-80432

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID: MB 720-80432/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/21/2010 1030
Date Prepared: 10/21/2010 0800

Analysis Batch: 720-80312
Prep Batch: 720-80432
Units: ug/Kg

Instrument ID: HP9
Lab File ID: 10211004.D
Initial Weight/Volume: 5 g
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Methyl tert-butyl ether	ND		5.0
Benzene	ND		5.0
EDB	ND		5.0
1,2-DCA	ND		5.0
Ethylbenzene	ND		5.0
Toluene	ND		5.0
m-Xylene & p-Xylene	ND		5.0
o-Xylene	ND		5.0
Xylenes, Total	ND		10
Gasoline Range Organics (GRO)-C6-C12	ND		250
TBA	ND		10
Ethanol	ND		500
DIPE	ND		5.0
TAME	ND		5.0
Ethyl t-butyl ether	ND		5.0

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	107	52 - 140
1,2-Dichloroethane-d4 (Surr)	101	60 - 140
Toluene-d8 (Surr)	108	58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-80432

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-80432/2-A	Analysis Batch:	720-80312	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80432	Lab File ID:	10211005.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/21/2010 1101			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 0800				

LCSD Lab Sample ID:	LCSD 720-80432/3-A	Analysis Batch:	720-80312	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80432	Lab File ID:	10211006.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/21/2010 1134			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 0800				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	115	114	71 - 144	1	20		
Benzene	103	104	82 - 124	1	20		
EDB	107	105	79 - 140	2	20		
1,2-DCA	95	95	74 - 125	0	20		
Ethylbenzene	104	105	80 - 137	1	20		
Toluene	101	102	83 - 128	1	20		
m-Xylene & p-Xylene	107	108	79 - 146	1	20		
o-Xylene	103	104	84 - 140	1	20		
TBA	91	91	76 - 119	0	20		
Ethanol	65	68	49 - 162	4	20		
DIPE	101	101	83 - 131	0	20		
TAME	112	109	74 - 140	2	20		
Ethyl t-butyl ether	105	104	76 - 129	0	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	107	106	52 - 140
1,2-Dichloroethane-d4 (Surr)	98	97	60 - 140
Toluene-d8 (Surr)	108	107	58 - 140

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-80432

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-80432/4-A	Analysis Batch:	720-80312	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80432	Lab File ID:	10211007.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/21/2010 1206			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 0800				

LCSD Lab Sample ID:	LCSD 720-80432/5-A	Analysis Batch:	720-80312	Instrument ID:	HP9
Client Matrix:	Solid	Prep Batch:	720-80432	Lab File ID:	10211008.D
Dilution:	1.0	Units:	ug/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	10/21/2010 1238			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 0800				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C6-C12	81	79	64 - 107	3	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	108	107	52 - 140
1,2-Dichloroethane-d4 (Surr)	100	99	60 - 140
Toluene-d8 (Surr)	109	109	58 - 140

Client: ARCADIS U.S., Inc.

Job Number: 720-31280-1

Method Blank - Batch: 720-80447

Method: 8260B/CA_LUFTMS
Preparation: 5030B

Lab Sample ID: MB 720-80447/1-A
Client Matrix: Solid
Dilution: 100
Date Analyzed: 10/21/2010 2058
Date Prepared: 10/21/2010 1700

Analysis Batch: 720-80383
Prep Batch: 720-80447
Units: ug/Kg

Instrument ID: CHMSV2
Lab File ID: 10211027.D
Initial Weight/Volume: 10 g
Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Ethylbenzene	ND		500
m-Xylene & p-Xylene	ND		500
o-Xylene	ND		500
Xylenes, Total	ND		1000
Gasoline Range Organics (GRO)-C6-C12	ND		25000

Surrogate	% Rec	Acceptance Limits
4-Bromofluorobenzene	82	66 - 148
1,2-Dichloroethane-d4 (Surr)	111	62 - 137
Toluene-d8 (Surr)	85	65 - 141

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-80447

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-80447/2-A	Analysis Batch:	720-80383	Instrument ID:	CHMSV2
Client Matrix:	Solid	Prep Batch:	720-80447	Lab File ID:	10211028.D
Dilution:	100	Units:	ug/Kg	Initial Weight/Volume:	10 g
Date Analyzed:	10/21/2010 2129			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

LCSD Lab Sample ID:	LCSD 720-80447/3-A	Analysis Batch:	720-80383	Instrument ID:	CHMSV2
Client Matrix:	Solid	Prep Batch:	720-80447	Lab File ID:	10211029.D
Dilution:	100	Units:	ug/Kg	Initial Weight/Volume:	10 g
Date Analyzed:	10/21/2010 2201			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	98	99	76 - 122	0	20		
Ethylbenzene	104	104	76 - 137	0	20		
Toluene	100	100	77 - 120	0	20		
m-Xylene & p-Xylene	100	100	71 - 142	0	20		
o-Xylene	105	104	71 - 142	1	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	96	95	66 - 148
1,2-Dichloroethane-d4 (Surr)	106	105	62 - 137
Toluene-d8 (Surr)	90	90	65 - 141

Client: ARCADIS U.S., Inc. Job Number: 720-31280-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 720-80447

Method: 8260B/CA_LUFTMS
Preparation: 5030B

LCS Lab Sample ID:	LCS 720-80447/4-A	Analysis Batch:	720-80367	Instrument ID:	SAT 3900A
Client Matrix:	Solid	Prep Batch:	720-80447	Lab File ID:	LCS G 10-22-2010 12;04;33
Dilution:	100	Units:	ug/Kg	Initial Weight/Volume:	10 g
Date Analyzed:	10/22/2010 0004			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

LCSD Lab Sample ID:	LCSD 720-80447/5-A	Analysis Batch:	720-80367	Instrument ID:	SAT 3900A
Client Matrix:	Solid	Prep Batch:	720-80447	Lab File ID:	LCSD G 10-22-2010 12;29;53
Dilution:	100	Units:	ug/Kg	Initial Weight/Volume:	10 g
Date Analyzed:	10/22/2010 0029			Final Weight/Volume:	10 mL
Date Prepared:	10/21/2010 1700				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Gasoline Range Organics (GRO)-C6-C12	85	74	70 - 130	13	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
4-Bromofluorobenzene	96	93	66 - 148
1,2-Dichloroethane-d4 (Surr)	99	91	62 - 137
Toluene-d8 (Surr)	99	97	65 - 141

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

720-31280

TESTAMERICA San Francisco Chain of Custody
1220 Quarry Lane • Pleasanton CA 94566-4756
Phone: (925) 484-1919 • Fax: (925) 600-3002

Reference #: 127637

Date 10/19/10 Page 1 of 2

Report To

Attn: Ben McKenna
Company: Aradis
Address: 2033 N. Main St. WC, CA
Phone: 925-274-1100 Email: Ben.mckenna@aradis-us.com
Bill To:
Sampled By: Rob Marie
Attn:
Phone: 510.409.3831

Analysis Request

Sample ID	Date	Time	Matrix	Preserv	TPH EPA - ☐ 8260B ☐ Gas w/ ☐ BTEX ☐ MTBE	TEPH EPA 8015M* ☐ Silica Gel ☐ Diesel ☐ Motor Oil ☐ Other ___	EPA 8260B: ☐ Gas ☐ BTEX ☐ 5 Oxygenates ☐ DCA, EDB ☐ Ethanol	(HVOCs) EPA 8021 by 8260B	Volatile Organics GC/MS (VOCs) ☐ EPA 8260B ☐ 624	Semivolatiles GC/MS ☐ EPA 8270 ☐ 625	Oil and Grease ☐ Petroleum (EPA 1664) ☐ Total	Pesticides ☐ EPA 8081 ☐ 608 PCBs ☐ EPA 8082 ☐ 608	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other:	Low Level Metals by EPA 200.8/6020 (ICP-MS):	☐ W.E.T (STLC) ☐ TCLP	☐ Hexavalent Chromium ☐ pH (24h hold time for H_2O)	☐ Spec. Cond. ☐ Alkalinity ☐ TSS ☐ TDS	Anions: ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4	GRO, BTEX, + 5 oxygenates by 8260B	Number of Containers
1 SB-1A-5 *	10/19/10	1100	S	⊖																	X	1
2 SB-1A-10		1105																				
3 SB-1A-15		1110																				
4 SB-1A-20		1115																				
5 SB-1A-25		1120																				
6 SB-2-5 *		1505											X RUSH									
7 SB-2-10		1510																				
8 SB-2-15		1515																				
9 SB-2-19		1520																				
10 SB-2-25		1525																				

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Project Info

Project Name: BP04931
Project#: GP09BPNA.CLO.C0000
PO#:
Credit Card#:

TAT: 5 Day | (3 Day) | 2 Day | 1 Day
Other:

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD ☐ State Tank Fund EDF
Special Instructions / Comments: ☐ Global ID _____

Sample Receipt

of Containers: 12
Head Space:
Temp: 5.4 °C
Conforms to record:

1) Relinquished by: _____ Time: 1740
Printed Name: Rob Marie Date: 10/19/10
Company: Aradis

2) Relinquished by: _____ Time: 1829
Printed Name: Mario Ochoa Date: 10/19
Company: GB

3) Relinquished by: _____ Time:
Printed Name: Date:
Company:

1) Received by: _____ Time: 1746
Printed Name: Mario Ochoa Date: 10/19/10
Company: G.B.

2) Received by: _____ Time: 1829
Printed Name: _____ Date: 10/19/10
Company: TASF

3) Received by: _____ Time:
Printed Name: Date:
Company:

See Terms and Conditions on reverse
*TestAmerica SF reports 8015M from C_6-C_{24} (industry norm). Default for 8015B is C_{10}-C_{28}

Rev09/09

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

720-31280

TESTAMERICA San Francisco Chain of Custody
1220 Quarry Lane • Pleasanton CA 94566-4756
Phone: (925) 484-1919 • Fax: (925) 600-3002

Reference #: 127637

Date 10/19/10 Page 2 of 2

Report To

Attn: Bey McKenna
Company: Arcadis
Address:
Phone: Email:
Bill To: Sampled By: Rob Muir
Attn: Phone:

Analysis Request

Sample ID	Date	Time	Matrix	Preserv.	TPH EPA - ☐ 8260B ☐ Gas w/ ☐ BTEX ☐ MTBE	TEPH EPA 8015M* ☐ Silica Gel ☐ Diesel ☐ Motor Oil ☐ Other ___	EPA 8260B: ☐ Gas ☐ BTEX ☐ 5 Oxygenates ☐ DCA, EDB ☐ Ethanol	(HVOCs) EPA 8021 by 8260B	Volatile Organics GC/MS (VOCs) ☐ EPA 8260B ☐ 624	Semivolatiles GC/MS ☐ EPA 8270 ☐ 625	Oil and Grease ☐ Petroleum (EPA 1664) ☐ Total	Pesticides ☐ EPA 8081 ☐ 608 PCBs ☐ EPA 8082 ☐ 608	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other: ___	Low Level Metals by EPA 200.8/6020 (ICP-MS): ___	☐ W.E.T (STLC) ☐ TCLP	☐ Hexavalent Chromium ☐ pH (24h hold time for H_2O)	☐ Spec. Cond. ☐ Alkalinity ☐ TSS ☐ TDS	Anions: ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4	Clo, BTEX, 8 Oxygenates by 8260B				Number of Containers
11 SB-1A-30	10/19	1125	S	—																		X			
12 SB-1A-35	10/19	1130	S	—																		X			

RUSH

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Project Info

Project Name: BP0493
Project#: GP09BPNA-Clo.C0002
PO#:
Credit Card#:

Sample Receipt

of Containers: 12
Head Space:
Temp: 5.4°C
Conforms to record:

TAT: 5 Day | (3 Day) | 2 Day | 1 Day
Other:

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD ☐ State Tank Fund EDF
Special Instructions / Comments: ☐ Global ID ___

See Terms and Conditions on reverse
*TestAmerica SF reports 8015M from C_9-C_{24} (industry norm). Default for 8015B is C_{10}-C_{28}

	1) Relinquished by:	2) Relinquished by:	3) Relinquished by:
Signature	Rob Muir	Mario Ochoa	
Time	1740	1829	
Printed Name	Rob Muir	Mario Ochoa	
Date	10/19/10	10/19	
Company	Arcadis	G.B.	

	1) Received by:	2) Received by:	3) Received by:
Signature	Mario Ochoa	Mich.	
Time	1746	1829	
Printed Name	Mario Ochoa	Mich.	
Date	10/19/10	10/19/10	
Company	GB	TASF	

Rev09/09

Login Sample Receipt Check List

Client: ARCADIS U.S., Inc.

Job Number: 720-31280-1

Login Number: 31280

List Source: TestAmerica San Francisco

Creator: Hoang, Julie

List Number: 1

Question	T / F/ NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	